The Comparable Body

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The Comparable Body

Analogy and Metaphor in Ancient Mesopotamian, Egyptian, and Greco-Roman Medicine

Edited by

John Z. Wee

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Cover illustration: Terracotta depiction of the Mesopotamian monster Huwawa, perhaps exaggerating the distinctness with which a diviner might perceive its image from coils of animal intestine, somewhat akin to the manner of a Rorschach test. A Neo-Babylonian inscription on its back reads, “If the coils of the intestine resemble the head of Huwawa, it is an omen of Sargon who ruled the land.” From Abu Habba (ancient Sippar), southern Iraq, ca. 1800–1600 BCE. Height 9 cm × Width 9.5 cm. AH 83-1-18, 2598. British Museum ME 116624. © The Trustees of the British Museum.

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Abbreviations

Languages

Akk.	Akkadian
Heb.	Hebrew
Sum.	Sumerian

Egyptian Texts

Bln	Berlin Medical Papyrus
Bt	Papyrus Beatty
CT	Egyptian Coffin Text
Eb	Papyrus Ebers
H	Hearst Medical Papyrus
pBerlin	Papyrus Berlin
pBritish Museum	Papyrus British Museum
pLondon	Papyrus London
pLouvre	Papyrus Louvre
Ram	Ramesseum
Sm	Papyrus Edwin Smith

Mesopotamian Texts

Alamdimmû	Physiognomic Series
AMC	Assur Medical Catalogue
En. El.	The Babylonian Creation Myth *Enūma Eliš*
Erimḫuš	Bilingual vocabulary list
IGI	Nineveh Treatise on Sick Eyes; Therapeutic sub-corpus on the EYE, preceded by the sub-corpus UGU = CRANIUM
Izi	Kassite acrographic word list, with Old Babylonian precursors
SA GÚ	Therapeutic sub-corpus on the BRONCHIA, followed by the sub-corpus SUALU = STOMACH
Malku	Akkadian list of synonyms
Nabnitu	Old Babylonian encyclopedic list
SA.GIG	Diagnostic-Prognostic Series, or *Diagnostic Handbook*

SUALU	Therapeutic sub-corpus on the STOMACH, preceded by the sub-corpus SA GÚ = BRONCHIA
(*Šumma*) *ālu*	Terrestrial omen series
(*Šumma*) *izbu*	Teratological omen series on birth anomalies
Udug-hul	Sumerian Incantation Series against Evil Demons, revised and standardized in the 1st millennium BCE as the Sumero-Akkadian bilingual series *Utukkū lemnūtu*
UGU	Therapeutic sub-corpus on the CRANIUM, followed by the sub-corpus IGI = EYE
Ugu-mu	Old Babylonian list of body parts ordered from head to foot, not known in later periods

Other Ancient Near Eastern Texts

bBerakot	Tractate Berakot in the Babylonian Talmud
bNiddah	Tractate Niddah in the Babylonian Talmud
LXX	Septuagint
mNiddah	Tractate Niddah in the Mishnah
yNiddah	Tractate Niddah in the Talmud of the Land of Israel

Greek and Roman Texts

Abbreviations mainly follow those in S. Hornblower, A. Spawforth, and E. Eidinow, eds., *The Oxford Classical Dictionary*, 4th ed. (Oxford, 2012), which have remained unchanged in the 5th and digital edition; and are supplemented by H. G. Liddell, R. Scott, and H. S. Jones, eds., *A Greek-English Lexicon*, 9th ed. (1940) with *Supplement* (Oxford, 1996).

Arist.	Aristotle
De an.	*De anima*
Gen. an.	*De generatione animalium*
Hist. an.	*Historia animalium*
Mete.	*Meteorologica*
Part. an.	*De partibus animalium*
Poet.	*Poetica*
Resp.	*De respiratione*
Rh.	*Rhetorica*
Somn. vig.	*De somno et vigilia*

[Arist.]	[Aristotle]
Mund.	*De mundo*
Plant.	*De plantis*
Pr.	*Problemata*
Aristid.	Aristides
HL	*Hieroi Logoi*
Or.	*Orationes*
Arr.	Arrian
Anab.	*Anabasis*
Democr.	Democritus
Diog. Apoll.	Diogenes of Apollonia
Diog. Laert.	Diogenes Laertius
Vit. phil.	*Vitae philosophorum*
DK^6	6th edition of H. Diels and W. Kranz, *Die Fragmente der Vorsokratiker*
Emp.	Empedocles
Gal.	Galen
Foet. Form.	*De foetuum formatione*
Hipp. Epid.	*In Hippocratis epidemiarum*
HNH	*In Hippocratis De natura hominum*
Hum.	*De humoribus*
Loc. Aff.	*De locis affectis*
MM	*De methodo medendi*
Nat. Fac.	*De naturalibus facultatibus*
PHP	*De placitis Hippocratis et Platonis*
Plat. Tim.	*In Platonis Timaeum*
Prop. Plac.	*De proprius placitis*
Sem.	*De semine*
Sympt. Diff.	*De symptomatum differentiis*
UP	*De usu partium*
Ut. Diss.	*De uteri dissectione*
Ven. Art. Diss.	*De venarum arteriarumque dissectione*
Hdt.	Herodotus
[Hippoc.]	[Hippocrates]
Alim.	*De alimento*
Carn.	*De carnibus*
Cord.	*De corde*
De arte	*De arte*
Epid.	*Epidemiae*
Flat.	*De flatibus*
Genit./Nat. puer.	*De genitura / De natura pueri*

Loc. hom.	*De locis in homine*
Morb. IV	*De morbis liber IV*
Morb. sacr.	*De morbo sacro*
Nat. hom.	*De natura hominis*
Oss.	*De natura ossium*
VM	*De vetere medicina*
Hipp.	Hippolytus
Haer.	*Refutatio omnium haeresium*
Hom.	Homer
Il.	*Iliad*
Od.	*Odyssey*
Philol.	Philolaus
Pl.	Plato
Phd.	*Phaedo*
Resp.	*Respublica*
Ti.	*Timaeus*
Plotinus, *Enn.*	Plotinus, *Enneades*
Plut.	Plutarch
Mor.	*Moralia*
Vit. Aem.	*Vitae Parallelae, Aemilius Paulus*
[Plut.]	[Plutarch]
Placit.	*Placita philosophorum*
Polyb.	Polybius
Porph.	Porphyry
Plot.	*Vita Plotini*
Quint.	Quintilian
Inst.	*Institutio oratoria*
Ruf.	Rufus of Ephesus
QM	*Quaestiones medicinales*
Sen.	Seneca (the Younger)
QNat.	*Quaestiones naturales*
Str.	Strabo
Theophr.	Theophrastus
Hist. pl.	*Historia plantarum*
Sens.	*De sensibus*

Dictionaries

AHw	*Akkadisches Handwörterbuch* by Wolfram von Soden
CAD	The Assyrian Dictionary of the Oriental Institute of the University of Chicago

Transliteration Notes

Cuneiform signs functioning as Akkadian syllables are transliterated in italicized lowercase letters (e.g., *sa-kik-ka*), while those functioning as logograms (word signs) of Akkadian words appear in non-italicized uppercase letters (e.g., KA, INIM, KIR$_4$). Transliterations of vocabulary and grammar in the Sumerian language are expressed with expanded character spacing (e.g., šà erin$_2$–na-ka-ni). Cuneiform signs, whose functions or language are not narrowly defined, whether by intention of the ancient or modern scribe or due to the uncertainty of context, are presented in non-italicized lowercase letters (e.g., ka) as part of cuneiform editions, or in non-italicized, small capital letters (e.g., KA) when they are visually confusable with other words in an English sentence.

Authors' quotations from Hebrew texts are transliterated using Latin script in accordance with Brill's scholarly style, which is loosely based on *Encyclopedia Judaica* rules.

Periodization of Ancient Mesopotamia

Time periods of Mesopotamian history and cuneiform tablets are adapted from lists by J. A. Brinkman in A. L. Oppenheim, *Ancient Mesopotamia: Portrait of a Dead Civilization*, revised ed. (Chicago, 1977) 335–48; and F. Rochberg, *The Heavenly Writing* (Cambridge, 2004) xxiii–xxiv.

Early Dynastic	3000–2334 BCE
Akkadian (Akkad dynasty)	2334–2154 BCE
Ur III	2112–2004 BCE
Old Babylonian (includes Isin and Larsa dynasties)	ca. 2000–1600 BCE
Old Assyrian	ca. 2000–1350 BCE
Middle Babylonian (Kassite dynasty)	ca. 1600–1100 BCE
Middle Assyrian	ca. 1350–1000 BCE
Neo-Assyrian	ca. 1000–612 BCE
Neo-Babylonian (Chaldean dynasty)	625–539 BCE
Persian (Achaemenid dynasty)	539–331 BCE
Hellenistic (Seleucid dynasty)	312 BCE–64 CE
Parthian (Arsacid dynasty)	250 BCE–224 CE
Sasanian	224–651 CE

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tled *Aspekte des Menschseins im Alten Mesopotamien. Eine Studie zu Person und Identität im 2. und 1. Jt. v. Chr.* (Brill, 2012).

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Introduction: To What May I Liken Metaphor?

John Z. Wee

On 1–3 May 2014, a modest group of historians working in the theory and practice of medicine in various regions of the ancient world gathered for a symposium at the Oriental Institute of the University of Chicago. While its topic had been broadly conceived as 'The Body in Ancient Medicine' during the initial stages of planning, it had evolved naturally, through conversations with participants prior to the symposium, to become more precisely articulated as *Body and Metaphor in Ancient Medicine*. A selection of papers presented did end up relating to each other in surprisingly meaningful ways, and their contents have been reworked as chapters for this volume.

Introducing the notion of 'metaphor' with its complex nuances and interpretive baggage, as some might astutely point out, represented more an expansion of the topic rather than a narrowing of it. Neither the symposium nor this volume, however, was intended as a systematic exploration of metaphor theory, abundant resources for which are available elsewhere for interested readers. It was, in fact, deemed inimical to our purposes for limited space to be devoted to lengthy reiterations of modern theories in each new chapter, at the expense of detailed treatments of the ancient sources themselves. Furthermore, the diversity of expertise was not, for the most part, directed towards questions on the transmission of ideas across different ancient cultures. Instead, participants were encouraged to draw conclusions based on close readings of case studies in their own local and cultural contexts, with interdisciplinarity serving to illuminate typologies of issues and strategies for encountering common problems, drawing attention to perspectives that might otherwise be taken for granted.

Our Chapters in Conversation

While different thematic threads on analogy and metaphor are closely intertwined across individual chapters, the volume broadly addresses topics on the role of analogy and metaphor as features of medical culture and theory, while questioning their naturalness and inevitability, their limits, their situation between the descriptive and the prescriptive, and complexities in their portrayal as a mutually intelligible medium for communication and consensus among users. Discussion in this section is not comprised of summaries per se of the

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individual chapters, which are rich in new philological contributions and fresh theoretical insights on issues beyond analogy and metaphor. Considerations of the latter are our focus here, though recurring medical and biological subjects are acknowledged by grouping together chapters on pathological heat (Chs. 1 and 3), the head-to-foot ordering of anatomy (Chs. 2 and 3), the heart's structure (Chs. 4 and 5), fluids—air, phlegm, blood—in the body (Chs. 4–6), pregnancy and embryology (Chs. 9 and 10), and the vegetal soul (Chs. 10 and 11).

The volume begins with a discussion by Rune Nyord (Ch. 1: 'Analogy and Metaphor in Ancient Medicine and the Ancient Egyptian Conceptualisation of Heat in the Body'), who builds upon his work on conceptual metaphor theory in *Breathing Flesh* (Museum Tusculanum Press, 2009), and was asked to provide an overview of theoretical issues that will resurface regularly over the course of the volume. Propounded by George Lakoff and Mark Johnson in their influential book *Metaphors We Live By* (1980), conceptual metaphor theory identifies metaphor and metonymy as structuring features of human thought, particularly as expressions of 'embodied' human experience from the inseparable perspective of one's own body. Adapting the theory for ancient medicine, Nyord proposes a nuanced understanding of metaphor as a range of categories in the intersection of two axes: (i) *truth-functionality* or *ontological commitment* and (ii) *lexicality*. On the one hand, *emic* definitions, which rely on our modern impression whether ancient authors in fact understood an expression metaphorically, are rejected in favor of *etic* linguistic analyses of the relationship between terminology and the embodied prototype referred to, allowing for a range of responses whether metaphor (so defined) was regarded as true or false by its user.[1] On the other hand, a degree of semantic stretch in lexical meaning is recognized, e.g., in the way 'blood vessel' is regarded, not as a metaphorical container, but as an ordinary denotative label for an object. Responding to tendencies by modern scholars to regard ancient medical terminology "as 'technical' and therefore necessarily specialized to the point of being unknowable," Nyord illustrates how his interpretive model yields fruitful conclusions about heat as a malady in Egyptian medicine.

Erica Couto-Ferreira (Ch. 2: 'From Head to Toe: Listing the Body in Cuneiform Texts') introduces us to the Mesopotamian vocabulary list Ugu-mu, whose arrangement of terms for body parts in head-to-foot order was taught in the scribal curriculum during Old Babylonian times (ca. 1st half of the 2nd millennium BCE), but which was supplanted by lexical lists based on acrographic and other principles in later periods. Certainly, the title Ugu-mu (lit. "my skull") and the list's repeated use of this first-person pronoun (e.g., "my eye," "my eyelid," "my eyeball") expresses the reflexive pull of embodiment (i.e., '*my* body') even in the context of a scribal lesson more generically about '*a* body.' The head-to-foot organization of Ugu-mu, moreover, continued to manifest itself in a great variety of compositions and genres, including anthropomorphic descriptions of deities, demons, divine weapons, and diseases, recitations of the patient's body in protective and healing incantations and rituals, and enumerations of bodily signs—human and animal—as ominous portents. Man was the measure of all things, and conceptions such as GOD IS JUDGE ascribed retributive agency to a deity, so that, e.g., in the Mesopotamian *Diagnostic Handbook* (SA.GIG), illicit sexual relations and unfulfilled oaths, among other violations, resulted in ailments described as "Hand of a god" or "Hand of Ištar," etc.

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[1] Admittedly, *etic* analyses do not completely remove subjectivity from interpretation, but the question on whether a user regarded a metaphor as true or false is often more easily treated than the question on whether he or she considered something a metaphor or not (as in the case of *emic* definitions). Cale Johnson (Ch. 3) also recommends an *etic* approach to the question of metaphor.

In contrast to this emphasis on supernatural causal agents in the diagnostic tradition (*āšipūtu*), Cale Johnson (Ch. 3: 'The Stuff of Causation: Etiological Metaphor and Pathogenic Channeling in Babylonian Medicine') argues that Babylonian "medicine" (*asûtu*) took its metaphors from landscape or atmospheric features, whereby sickness arises due to a chain of largely physical causes.[2] As a matter of fact, both the *Diagnostic Handbook* (belonging to *āšipūtu*) and the medical sub-corpora on CRANIUM, EYES, BRONCHIA, and STOMACH (belonging to *asûtu*) were heirs of the head-to-foot scheme of organization popularized earlier by the vocabulary list Ugu-mu (Ch. 2). As implied by Couto-Ferreira, however, the form of the *Diagnostic Handbook* (Table 2.5) likely expressed purposes aligned with those of the "magician / exorcist" (*āšipu*) when enumerating a patient's body parts during incantations and rituals, i.e., to ensure that no part of the body was neglected from protection or healing. Johnson, on the other hand, makes a case that the head-to-foot order in the medical sub-corpora was reflective of metaphors such as ALIMENTARY CANAL AS CHANNEL/WATERWAY, whereby the linear transformation of disease from one location to another farther down the body depicts the movement of disease along this CHANNEL/WATERWAY.[3] Furthermore, in this model, gastrointestinal diseases result from the consumption of foods that wrangle (a-da-mìn) with the sufferer or with each other all the way down the alimentary canal, scenarios depicted in medical incantations of the STOMACH sub-corpus and implied in the Sumerian debate between *Ewe and Grain* (both conceived as foodstuffs).[4] It is possible that this perspective is implicit in the gastrointestinal ailment designated as U$_4$.DA SÁ.SÁ ("(someone) struggling with *ṣētu*-fever").[5]

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[2] A clarification of terminology is needed: Johnson makes a distinction between (i) *asûtu* as "recipe-driven medicine" or simply "medicine" versus (ii) *āšipūtu* as "diagnostics and exorcistic healing" and "incantation-and-ritual-driven exorcism," but not "medicine." Some others (myself included) consider the two terms to denote different traditions or disciplines of "medicine" or "healing."

In Johnson's view, while *āšipūtu* and *asûtu* were distinguished from each other, each discipline had its own profession (i.e., the *āšipu* and the *asû*) and subscribed to an etiology of disease modeled after the same kind of metaphor, involving either supernatural agents (*āšipūtu*) or the landscape and atmosphere (*asûtu*) (Table 3.1). It can be attractive to articulate medical theory by means of overarching metaphors, especially since 'structural metaphor' works in ways akin to the *modus operandi* of theory, by "[imposing] a consistent structure on the concept it structures" (*Metaphors We Live By*, p. 219). The example LOVE IS JOURNEY by Lakoff and Johnson (cited by Nyord in Ch. 1) includes ideas of lovers as travelers, the love relationship as the vehicle, relationship goal(s) as the journey's destination, and so on, even if not every instance of metaphorical mapping from one domain (i.e., JOURNEY) to another (i.e., LOVE) is explicit. Perhaps closer to our medical theme is the well-worn modern metaphor of BODY AS MACHINE with corollaries such as HEART IS PUMP, LUNGS ARE BELLOWS, JOINTS AND BONES ARE HINGES AND LEVERS, etc., where the imposition of metaphor structure shapes the definition not only of what is 'body,' but also what is 'machine,'[6] in order to accommodate organs and bodily systems whose workings are less mechanical and more biochemical or electro-chemical. Furthermore, the metaphor decides in advance what is most salient for comparison, emphasizing the affinities between heart and lungs as movers of fluids (i.e., blood and air respectively) above, say, the status of lungs and kidneys as organs excreting waste products (i.e., carbon dioxide and urine respectively).

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[3] For instance, the STOMACH sub-corpus begins with: "If a man is ill with 'phlegm' [i.e., in the respiratory zone], and it turns into 'gastric constriction' [i.e., in the abdominal region farther down]." Translation by Johnson (Ch. 3, n. 71).

[4] I refer to this metaphor later as DISEASE-CAUSING FOOD AS DISPUTANT, perhaps echoed in the modern idiom of an 'upset' stomach.

[5] Notice the grouping together of compound forms with a-da-mìn along with sá^{sa}.^{sa}sá in Nabnitu XXVII 268–271 (MSL 16: 237), cited by Johnson in Ch. 3.

[6] What is 'machine'? Certainly more than Descartes understood by the term, when he proposed the metaphor in his *Traité de l'homme* around the mid-seventeenth century CE. Consider, for example, BRAIN IS COMPUTER.

Our dissatisfaction with the metaphor BODY AS MACHINE, however, relies on modern advances in the knowledge of anatomy and physiology, and—to frame the problem in terms of Nyord's category of ontological commitment—it can be questionable to what extent ancient users considered the literal formulation of their metaphors to be true or false. Moreover, in contrast to broad consensus on terminology and models in (western) medicine today, we often cannot take for granted that ancient authors worked from the same theoretical foundation, that they were uniform in their level of commitment to expressed views, or that they were agreed on the limits to particular metaphors. The practical response is to tread cautiously, sometimes even to resist the consistent imposition of metaphor structure, where there is suspicion one might be dealing with separate metaphors. Remarking on the description of a "nest (*sš*) of heat-penetration" (Bln 154) in Egyptian medicine, for instance, Nyord observes how "the imagery of the nests of birds or other animals [is] akin to the 'twine' metaphor in its portrayal of heat as a fixed and solid entity" (p. 30), but rightly hesitates to take the additional step of designating this "nest" (perhaps imagined as a woven structure of intertwined grasses and twigs) as an instantiation of the metaphor of heat as a "robust assemblage" of intertwined fibers that is attested elsewhere. Similarly, as Johnson (Ch. 3) suggests with regards to gastrointestinal disease, the metaphors ALIMENTARY CANAL AS CHANNEL/WATERWAY and DISEASE-CAUSING FOOD AS DISPUTANT could be simultaneously operative, even while avoiding the mixed metaphor of a disputant being swept along a waterway.

Another perspective on the matter comes from Lesley Dean-Jones (Ch. 4: 'Aristotle's Heart and the Heartless Man'), who examines theories of the heart's structure held by Syennesis and Polybus (or the author of *Nature of Man*) as well as Aristotle.[7] It was noteworthy to ancient anatomists that the same type of blood vessel appeared to be attached to different sides of the heart, with the pulmonary artery on the right and the aorta (artery) on the left, and with the vena cava (vein) on the right and pulmonary vein on the left (see fig. 4.1 on p. 131). Whereas arteries that carried oxygenated blood from the heart were thick and "sinewy" to withstand the higher blood pressure, veins that carried deoxygenated blood to the heart were thinner, "membranous and skinlike," with valves to prevent the backflow of blood under low pressure. Anatomical accounts by Syennesis and Polybus have been viewed with skepticism, because they omit mention of the heart, but describe a crossing of blood vessels in the chest region. As Dean-Jones argues, however, these authors very likely perceived an actual continuity of blood flow within parts of the heart that emerged as the same type of vessel on right and left sides. The application of the idea to both artery and vein yielded the picture of blood vessels crossing each other. Despite Aristotle's strong cardiocentrist views, he does not fault Syennesis and Polybus for omitting the heart, and seems to appreciate how such perceptions would have been aided by observations of the foramen ovale and ventricular septal defect in a fetal heart, which provided thoroughfare between the atria and between the ventricles.

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[7] Plato's metaphor of the heart as the "knot of the veins" also receives brief discussion.

Aristotle's conception of the heart is complicated by statements elsewhere that blood vessels "do not go through" the heart (*Part. an.* III.4, 665b14–17), which appear to repudiate the 'crossing of vessels.' Dean-Jones speaks of the 'crossing of vessels' as "antithetical to Aristotle's understanding of the heart, but, when viewed purely as a metaphor, he found it so apt that it guided his anatomical description of the organ," and "in his later biological works, however, when he came to discuss the functions of the heart, the description of the vessels 'passing through' the heart was a metaphor that he had to disavow roundly." Since there are degrees of truth-functionality or ontological commitment, however, it follows that different parties can employ the same expression as different kinds of metaphor: "In a geocentric cosmology, 'The sun rises' could in fact have been used with full commitment. [But it also survives in a heliocentric worldview], where it still succeeds in capturing central experiential aspects of the phenomenon, without however constituting an accurate representation of the underlying scientific facts as understood by the speaker" (p. 22, n. 19).[8] Aristotle's disavowal of the 'crossing of vessels,' therefore, may not necessarily stem from a change of mind, but from an effort to express himself with heightened clarity, in contexts where the extent of his ontological commitment to the metaphor could be misunderstood or misrepresented. An analogous situation might involve a heliocentrist who would normally not think twice about saying 'The sun rises,' but who tells a geocentrist 'The sun does not rise' as part of a technical explanation on heliocentrism.

In other cases, as Keyser correctly recognizes (Ch. 6), separate metaphors undergo some degree of 'conceptual blending,' a mental operation described by cognitive scientists Fauconnier and Turner in their book *The Way We Think* (2002). Contrary to the common assumption that "notions like compositionality are meaningless for figurative phenomena like metaphor," they show that, "regardless of conceptual content," the language forms of metaphorical expressions behave like those of literal statements, in so far as both are subjectable to the same kind of grammatical and syntactical manipulation that generates blended forms with predictable meanings.[9] This way of thinking resonates well with *etic* approaches to metaphor involving analysis of its linguistic forms, which are favored by Nyord (Ch. 1) and Johnson (Ch. 3).

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[8] Even in a geocentric cosmology, 'The sun rises' is still a metaphor that reflects an embodied perspective of the sun moving upwards at dawn.

Conceptual blending occurs in the study by John Wee (Ch. 5: 'Earthquake and Epilepsy: The Body Geologic in the Hippocratic Treatise *On the Sacred Disease*'), who observes how meteorological theories on earthquakes, similar to those by Aristotle and Seneca, account for the etiology of epilepsy and the body's inner topography in *Sacred Disease*. Earthquakes arise due to wind in a subterranean riverscape, in which water forces air through venous passages into "hollows" (i.e., caverns) downstream, where the trapped air moves agitatedly and is released violently with the buildup of pressure. Similarly, epilepsy ensues when fluxes of phlegm from the brain choke up the passages of veins extending into "hollows" deep within the body, so that confined wind "[gushes] upward and downward through the blood" and "causes spasms and pain" (*Morb. sacr.* 7.10 in Jouanna 2003, 16). The metaphor's implication that air passages from the brain are interrupted during epileptic fits is, in addition, blended with the ancient notion that air imparts "sensibility" (φρόνησις) where it exists, explaining why sufferers lose conscious control over convulsing limbs that are cut off from the brain's air stream. The physical dimensions of bodily "hollows" and their ability to accommodate air, accordingly, become metaphors for psychological capacities. In the encephalocentric scheme of *Sacred Disease*, where the brain rather than the heart is the seat of cognition, the heart is defined as merely cardiac muscle that surrounds veins, and which therefore does not come into direct contact with air or "sensibility."[10] The observation that most people are right-handed and right-footed, conversely, leads to the understanding that the right side of the body is more "sensible" and contains larger "hollows" capable of receiving more air and phlegm, so that children recover more readily if their flux of phlegm occurs on the right side.

In contrast to the natural pairing of earthquake and epilepsy, Paul Keyser (Ch. 6: 'The Lineage of "Bloodlines": Synecdoche, Metonymy, Medicine, and More') argues that "lifeblood" as a synecdoche for individual life, and "bloodline" as a metonym for lineage, are neither natural nor obvious, and represent social and cultural constructs. The former may derive from the observation that bleeding causes death, but the inference that blood is a substance infused with vital power is not inevitable. As a synecdoche, "lifeblood" shapes perceptions of life as "a thing you can lose, rather than a process that ends" and as "embodied in an essential substance contained in the body, rather than being a dynamic state of existence." The metonym of "bloodline," on the other hand, likely stems from Mesopotamian myths on the creation of man from divine blood, and continues to depict the lineages of primarily gods and heroes in Greek and Roman contexts. Conceptual blending of the two figures results in a variety of logical conclusions, that male semen is derived from blood, that female blood represents the mother's contribution to the production of offspring, and that the fetus developing in the womb is nourished by menstrual blood. The notion that lineage can be healthy or diseased, pure or polluted, is already inherent in the concept of "bloodline," but comes to the fore in the blended figure, placing the onus on each new generation to preserve 'purities' in class, ethnicity, and temperament through selective marriages, and hence reinforcing perceived differences among people.

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[9] G. Fauconnier and M. Turner, *The Way We Think: Conceptual Blending and the Mind's Hidden Complexities* (New York: Basic Books, 2002), 154–59.

[10] This view of the heart's structure may be related to conceptions by Syennesis and Polybus among others, who described the crossing of blood vessels in the chest while suggestively omitting any mention of the heart. See discussion by Dean-Jones in Ch. 4.

Keyser's repeated emphasis, that the figures of "lifeblood" and "bloodline" are not natural or obvious, aims to dismantle the veneer of inevitability associated with these ideas, particularly as they give fuel to modern discriminatory abuses. Metaphors not only describe what is, but frequently prescribe what ought to be, in accordance to the values of their users. Strahil Panayotov (Ch. 7: 'Eye Metaphors, Analogies and Similes within Mesopotamian Magico-Medical Texts') highlights this prescriptive role of imagery in magical incantations for diseased eyes. In contrast to the technical style of written recipes largely intended for the healer's own consultation, incantations interspersed among these recipes abound in the vivid language of speech addressed directly to the afflicted eye. In his chapter, Johnson already observes exchanges of the following nature: "(Patient:) O belly, belly! Where are you going?" "(Belly:) In order to inflict pain on the belly of the young man!" (p. 100), in which the entity addressed as "O belly!" is simultaneously the patient's own body part as well as the sickness that has autonomy to inflict pain on whomever it wishes. Here, Panayotov records similar interactions between healer and sick eyes: "O you eyes are porous blood vessels! Why have you picked up chaff,…?" (p. 225), and "O cloudy eyes, O blurred eyes, O eyes intersected by blood vessels! … I called to you, come here … !" (p. 228). As if it were a reversal of Ugu-mu where the generic scribal lesson about '*a* body' becomes a reflection on '*my* body' (Ch. 2), the patient here is instead merely a passive and largely helpless listener, while the healer addresses the illness manifested in the (patient's own) diseased body part as a foreign entity that "comes" and "goes" as it pleases.

Power is starkly asymmetrical in the healer-patient relationship, and, through incantations, healers unilaterally prescribe metaphors that shape how patients are supposed to perceive the disease and its cure.

Similar issues are considered by Janet Downie (Ch. 8: 'The Experience and Description of Pain in Aelius Aristides' *Hieroi Logoi*'), who questions the curious absence of metaphor in the way Aelius Aristides depicts pain. Described by Helen King as a "professional patient," Aelius Aristides (117–181 CE) records in the *Hieroi Logoi* ("Sacred Tales") his first-person account of sickness, therapy, and intimacy with the healing god Asclepius. Adopting the dual perspective of patient and observer, Aristides shifts between scenes in which he experiences illness at firsthand, and retrospective narratives where he considers his sick self at a distance, and observes symptoms in the manner of an objective Hippocratic physician. In the ancient literary tradition, pain is most often articulated in metaphorical terms from the embodied perspective of the sufferer. A prominent concern, however, is the absence of an objective standard by which patient metaphors of pain become consistently intelligible to physicians. Archigenes attempts to solve the issue by standardizing vocabularies used for different qualities of pain, while Galen insists on the use of customary language that appeals to widespread sensory experiences, and whose referents are likely to be supported by broad consensus among patients. Metaphors of pain are largely absent from the *Hieroi Logoi*, with a rare exception in a description on "pain, numbing (*narkôdês*) and impossible to bear" (*Or.* 48.63). Downie observes, however, that *narkôdês* belongs to Archigenes' repertoire of standardized terms, and that Aristides in fact employs it in alignment with Galen's definition of "'numbness' as an effect produced by cold transmitted through the nerves to any number of areas of the body" (p. 269). The metaphor begins to resemble more a linguistic convention by an objective observer, rather an embodied expression of personal pain. For the most part, Aristides' refusal to engage in metaphor denies others access to his unvocalized experiences, guaranteeing his strong control over his own illness narrative and its interpretation. Whereas Mesopotamian healers hold the initiative in the use of incantatory metaphors as a medium of communication (Ch. 7), the prerogative of metaphor in this instance lies with the "professional patient."

Ulrike Steinert (Ch. 9: 'Concepts of the Female Body in Mesopotamian Gynecological Texts') surveys the rich variety of metaphors employed in cuneiform texts as models for the female reproductive system, conception, gestation, and birth. In Mesopotamian gynecology, female fertility and physiology are characterized by what Steinert calls "the body technologic," which derives its imagery from human interactions with the environment in craft production, agriculture and irrigation, and animal husbandry, and which perhaps also portrays pregnancy and childbirth as productive work at a time when the woman's condition may have required her to cut back on activities of employment. Straddling the divide between nature and culture, she suggests how basic conceptual metaphors rooted in universal human experience, such as THE BODY IS A CONTAINER, are manifested differently when shaped by conceptions unique to particular societies and cultures. The image of the womb as a *bread oven* in Greek medicine, therefore, reflects the prominence it accords to 'cooking' as a metaphor for transformative physiological processes, whereas the Mesopotamian counterpart of the womb as a *pottery oven* relates to mythological accounts of how humans are created from clay. While not every metaphor lends itself to such analysis (many in the chapter, in fact, do not), it certainly opens the door to the possibility of homology as an alternative interpretation, as others have in fact proposed for Chinese medicine (e.g., Vivienne Lo, Elisabeth Hsu) and African medicine (e.g., Françoise Héritier). As a matter of fact, the shared identity connecting entities linked by homology, which extends beyond similarities of form and function posited by analogy and metaphor, becomes an important consideration in the final two chapters (10 and 11), which explore precisely in what sense the vegetal exists as a part of human life.

Brooke Holmes (Ch. 10: 'Pure Life: The Limits of the Vegetal Analogy in the Hippocratics and Galen') asks the question: "Are we simply like plants, or are we, in some critical way, plants ourselves?" Plants display their growth and nutrition in open view, promising to illuminate similar processes taking place in the human embryo deep inside the womb. In the Hippocratic treatises *On the Seed* and *On the Nature of Child*, the plant's capacity to attract nutriment and to self-perpetuate commends itself as an analogue for the embryo, with branching tree limbs mirroring the development of branching bones. Parturition occurs when the fetus is no longer sufficiently nourished by the mother, and so uproots itself and turns animal by initiating its own movement at the moment of birth. The Hippocratic account, however, gives a weak sense of different ontological stages taking place in utero, and the demarcation of different orders of soul—plant, animal, human—must wait until Plato and especially Aristotle. Galen, on his part, addresses the embryo as "this plant," referring to it as a minimal form of life comprised of the most basic nutritive or desiderative soul, and which is pure without any accretions of animal soul. Holmes suggests that, "instead of seeing these analogical and ontological uses of the plant as opposed, it may seem to make more sense to see them as different points on a continuum of increasing likeness between human beings and plants: similarities at the level of morphology become similarities in the processes producing these shared forms, which in turn become similarities in the very power responsible for these processes."

In the final chapter, Courtney Roby (Ch. 11: 'Animal, Vegetable, Metaphor: Plotinus's Liver and the Roots of Biological Identity') argues for a more nuanced structural model proposed by René Dirven, which involves both metaphor and metonymy in the expression of conceptual relationships. While metaphor maps attributes from a source domain to a non-contiguous target domain, metonymy deals with only a single contiguous domain, and substitutes an element for another based on their conceptual closeness. Applying the model to Plotinus' view of the ensouled body, Roby understands the body and soul of a given individual as two contiguous parts in a metonymic relationship, which are in turn situated within a much larger context of bodies and souls (e.g., of plants, animals, the world itself). The vegetal soul in each organism is responsible for its growth and nutrition, and is what maintains its biological identity. In humans and animals, this vegetal faculty is headquartered in the liver. Roby remarks that "in his persistent comparisons between divergent types of bodies and souls, particularly those of humans and plants, Plotinus provokes us to reflect on the attributes we share with all other types of living individuals, even as he delineates those that are peculiar to rational creatures."

CHAPTER 1

Analogy and Metaphor in Ancient Medicine and the Ancient Egyptian Conceptualisation of Heat in the Body*

Rune Nyord

This chapter develops a conceptual framework for approaching special, technical uses of language found in ancient medical texts. As an alternative to the unwieldy intuitive distinction between so-called 'literal' and 'figurative' language, medical use of terminology derived from other domains of experience is better approached as a question of intersection between axes of lexical centrality and ontological commitment. The advantages of this framework are then exemplified by an analysis of the roles of heat in ancient Egyptian healing texts, demonstrating how a more nuanced understanding of ancient conceptions can be achieved by paying attention to uses of language derived from different experiential domains.

1 Introduction

Textual sources for ancient medicine often employ technical language and terminology derived from other domains of life. This characteristic can be difficult to articulate precisely. On the one hand, it is clearly related to the literary phenomenon of metaphor, in that ordinary meanings are extended according to certain principles to result in technical uses of words. On the other hand,

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* A previous version of this paper was given as a guest lecture at the University of Liverpool in March 2014. It has benefitted greatly from the subsequent discussion, both on that occasion and at the Chicago symposium, where especially the various concepts of metaphor and their usability in studying ancient medicine were discussed in detail. My aim here has been to incorporate the gist of the various viewpoints in order to hopefully arrive at a concept of metaphor which is both nuanced and useful for the particular purpose of exploring conceptualisations of the body in ancient medicine, without losing the basically practical aims of the exercise. I am very grateful to Camilla Di Biase-Dyson for stimulating discussions of a draft of the paper, and to the anonymous reviewer for a number of useful suggestions.

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the decision to label technical language as ‘metaphorical’ can carry a number of problematic connotations, such as implying that the ancients did not hold their descriptions to be literally true, which stands in contradiction to the evidence in many cases.

The present chapter begins by developing a conceptual framework suitable for studying the phenomena of metaphor and analogy in ancient medicine, drawing on influential paradigms from cognitive linguistics, phenomenology and the history of medicine. The notion of ‘metaphor’ deserves particular attention, on the one hand, because of the great promise of conceptual metaphor theory for studying ancient medicine, and on the other, because such broad definitions of metaphor are not always compatible with other scholarly work that rely on a more traditional concept of metaphor. The question of the applicability of a theory of metaphors to ancient conceptions of the body has also been raised in other traditions independently of the notion of conceptual metaphor, and some of the insights from such works will be presented as well, in order to arrive at a conceptual framework suitable for analysing and interpreting ancient medical texts.

Following this theoretical exposition, the chapter will move on to a case study dealing with the phenomenon of heat in the body in ancient Egyptian medical texts. Based on how linguistic expressions of this phenomenon draw upon primary lexical meanings of the terminology employed, I will articulate the outline of an underlying causal model by which heat moves around within the human body according to certain principles, and in turn gives rise to observable (especially digestive) problems. In this manner, bodily heat in ancient Egyptian texts provides a perfect illustration of the way attention to the use of ‘technical’ language can be coupled with a practicable conceptual framework to yield new insights into the workings of ancient anatomical and physiological models.

2 Analogy and Metaphor in Ancient Medicine

Ancient medicine tends to describe the human body and its processes and functions in terms derived from other domains of experience, which immediately raises questions of what is literal, what is metaphorical, and what is analogical. In part, these questions touch on issues of empiricism and how texts present their descriptions. It is also clear, however, that much depends on how we define the terms ‘literal,’ ‘metaphoric,’ and ‘analogical,’ which inevitably raises broader questions on the philosophy of language.

One highly influential theoretical framework[1] for approaching such questions is that of conceptual metaphor theory. In their seminal 1980 book *Metaphors We Live By*,[2] George Lakoff and Mark Johnson introduced a new, broader concept of metaphor grounded on the hypothesis that human linguistic structure reflects conceptual structure. This means that linguistic phenomena such as metaphor and metonymy are not mere stylistic or rhetorical devices, but rather a reflection of fundamental patterns of human *thought*.

The second central idea in conceptual metaphor theory is that the human conceptual system is fundamentally embodied. As a consequence, humans tend to think in categories that are tied to experiences of the body, such as INSIDE-OUTSIDE or UP-DOWN. Furthermore, such 'orientational metaphors' tend to rely on pairs of opposing ideas, elements of which naturally correspond to bodily experience. In expression of embodied experiences, therefore, UP is often associated with concepts such as HAPPY ('my spirits *rose*'), CONSCIOUS ('wake *up*'), HEALTH and LIFE ('He's at the *peak* of his health') and CONTROL ('I am *on top of* the situation'), in contrast to the way DOWN is associated with UNHAPPY ('I'm feeling *down*'), UNCONSCIOUS ('He *sank* into a coma'), SICKNESS and DEATH ('He came *down* with the flu') and being subject to CONTROL ('He is *under* my control').[3] It is worth noting here that, because of their ubiquity, such expressions do not necessarily strike us intuitively as metaphors, and indeed many of the italicised usages can be found in dictionary definitions of the words in question. Nevertheless, in these examples, one domain is still understood in terms of another (in this case bodily directionality), and they therefore qualify as metaphorical according to the definition of conceptual metaphor theory.

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[1] So influential, in fact, that a reviewer of a recent anthology not dissimilar to the present one expressed regret that the introduction to that volume spent its allotted space introducing 'now-familiar concepts that were once foundational for making "the body" a field of cultural research,' including conceptual metaphor theory (J. Orlemanski, Review of *Medicine and Space: Body, Surroundings and Borders in Antiquity and the Middle Ages*, by P. Baker et al. *Medieval Review* (2014), https://scholarworks.iu.edu/dspace/bitstream/handle/2022/17416/14.03.24.html (accessed November 7, 2014)). While the present overview has the additional aim of relating conceptual metaphor theory to certain other pertinent approaches to develop a more general framework suitable for the topic at hand, my impression at the symposium was that there are in fact sufficient differences between the disciplinary traditions represented there that the characterisation of conceptual metaphor theory as a 'now-familiar concept' cannot be said to be applicable to all of them, thereby providing an additional motivation for the overview given here.

[2] G. Lakoff and M. Johnson, *Metaphors We Live By* (Chicago: University of Chicago Press, 1980). For a recent overview and evaluation of conceptual metaphor theory, see R. W. Gibbs, "Evaluating Conceptual Metaphor Theory," *Discourse Processes* 48/8 (2011): 529–62.

[3] Examples from Lakoff and Johnson, *Metaphors We Live By*, 15.

To return to the association between HAPPY and UP, this connection is found not only in the case of the noun ‘spirits’ as subject of the verb ‘rose,’ but in a large number of other linguistic expressions as well (e.g., ‘I'm feeling *up,*’ ‘That *boosted* my spirits,’ ‘You're in *high* spirits,’ ‘Thinking about her always gives me a *lift*’),[4] suggesting the existence of an underlying conceptual association that is more general than any one of its linguistic instantiations. Such a ‘conceptual metaphor’ is expressed in conventional notation as HAPPINESS IS UP, signifying a pattern wherein the abstract domain of HAPPINESS is conceptualised by means of the experiential domain of VERTICALITY, more specifically, the direction UP.

Apart from such orientational metaphors that map a set of directions onto abstract concepts, another ubiquitous group of conceptual metaphors are called ‘ontological metaphors.’[5] This kind of metaphor basically serves to confer upon an abstract concept the status of a particular kind of thing. Thus, intangible phenomena such as TIME can (and often need to) be thought of and spoken about as if they had a more tangible ontological status, e.g., TIME IS A RESOURCE (‘I have *spent* too much time on this’). Such metaphors are deeply embedded into human languages, and they are very frequent in ancient medicine as well, where processes and symptoms for instance can be conceptualised as concrete objects or containers. For example, in the case study to be discussed shortly, heat in the human body is generally conceptualised as an object capable of moving around and attaching itself to various parts of the body, so that the physician's objective becomes to ‘remove’ the heat. Even when such cases involve only minimal transfers across domains, they remain highly significant, because they tend to shape the conceptualisation of phenomena in fundamental ways with methodological implications, influencing how modern audiences draw inferences about the phenomena. The choice to conceptualise HEAT as an OBJECT, therefore, leads to different expectations and practices than what might have ensued if HEAT had been conceptualised as a PROCESS or a QUALITY instead.

Other conceptual metaphors are much more complex. These are the so-called ‘structural metaphors’ in which the entire conceptual structure is projected from one domain to another. For example, expressions pertaining to love relationships such as ‘Look how far we've come,’ ‘We're stuck,’ ‘We're just spinning our wheels,' and 'We've gotten off the track' instantiate the conceptual metaphor LOVE IS A JOURNEY. Here, it is not just a one-to-one relation between two concepts as in the case of HAPPINESS IS UP, but rather a whole set of metaphorical mappings that relate the source domain to the target:[6]

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[4] *Ibid.*

[5] Lakoff and Johnson, *Metaphors We Live By*, 25–32; Z. Kövecses, *Metaphor: A Practical Introduction* (Oxford: Oxford University Press, 2002), 34–35.

Source: JOURNEY		*Target*: LOVE
the travellers	→	the lovers
the vehicle	→	the love relationship itself
the journey	→	events in the relationship
the distance covered	→	the progress made
the obstacles encountered	→	the difficulties experienced
decisions about which way to go	→	choices about what to do
the destination of the journey	→	the goal(s) of the relationship

We should note that, even if a particular linguistic instantiation of the conceptual metaphor only explicitly refers to a few of these structural mappings, most if not all of them are necessarily conceptualized as a group in order for one to make sense of any individual connection between the domains. Indeed, rather than merely highlighting points that two independent domains have in common, the conceptual metaphor becomes the means by which the (more abstract) target domain is actively structured in terms of the (more concrete) source domain. There is nothing inherent in the LOVE domain that compels conceptualisation in terms of JOURNEYS. In fact, most abstract domains have little structure of their own, which explains why metaphorical expressions of the kind illustrated here are so ubiquitous. Since choices of metaphors may not be immediately self-evident to an observer from a different culture, the interplay between conventions of metaphor conceptualisation and native cultural practices and expectations becomes a question of great interest.[7] A culture that regularly uses the metaphor LOVE IS A JOURNEY, accordingly, perceives the challenges and criteria for a love relationship in ways that are consistent with the metaphor. For abstract domains of primary importance, most languages actually allow for a range of different conceptual metaphors that can be draw upon. In such cases, the selection of one conceptual structure over another would influence how one envisions the domain in question.[8]

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[6] Kövecses, *Metaphor*, 7.

[7] See Z. Kövecses, *Metaphor in Culture: Universality and Variation* (Cambridge: Cambridge University Press, 2005).

[8] See Lakoff and Johnson, *Metaphors We Live By*, 97–105 for some examples.

This last point about structural metaphors is of particular relevance to conceptions of the body in ancient medicine. The workings of the human body, and especially its inside, are necessarily described with terminology adopted from other domains of experience, usually in terms of 'physical' qualities and movements more readily observable through embodied experience. As such, models of the human body in ancient medicine are prime examples of the kind of abstract domains analysable by conceptual metaphor theory, even if they are 'abstract' in a sense slightly different from the domains of LOVE or HAPPINESS discussed above. According to conceptual metaphor theory, such descriptions by definition involve sets of conceptual mappings that make the structure of one domain applicable to another, making it possible to carry out a fruitful analysis of the metaphors involved.

As is clear from this brief presentation, this approach to metaphor differs in a number of ways from the everyday use of the term. Of particular relevance to the body in ancient medicine are two such differences that can be labelled, on the one hand, the question of *truth-functionality* or *ontological commitment* and, on the other hand, the question of *lexicality*.

The first of these questions concerns the fact that, in the everyday understanding of metaphor, truth-functionality plays an important role in identifying the phenomenon. For instance, the expression 'Achilles is a lion' is regarded as a metaphor partly because the sentence does not correspond to a true state of affairs in the real world. In other words, the sentence would be a metaphor if designating a human warrior, but would not be one if referring to a lion of that name in a zoo.

Theories on metaphors whose definitions hinge on truth-functionality may be argued to have considerably limited relevance in ancient medicine, since anatomical and physiological descriptions in ancient medicine are often portrayed as giving an accurate description of a real state of affairs. They also raise a number of difficult methodological questions, since the very status of metaphor crucially depends on the ontological commitment of the ancient communicators to the medical discourse in which they engage—a motivation that can be difficult to determine in practice and to demonstrate beyond the shadow of a doubt.[9]

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[9] A discussion of the broader implications and practical problems of clarifying ontological commitment falls outside the scope of this article, which should not be taken as an indication that this is by any means a trivial question, cf. the discussion in B. Good, *Medicine, Rationality and Experience: An Anthropological Perspective* (Cambridge: Cambridge University Press, 1994), 1–24; not to mention the renewed actuality of these questions in the recent 'ontological turn' in anthropology (see e.g. M. W. Scott, "The Anthropology of Ontology (Religious

A related concern is the expectation, sometimes voiced in ancient studies, that 'metaphor' should be used as an *emic* term. In other words, the identification of a metaphor in an ancient text would depend on a case being made that the ancient author actually understood the expression as a metaphor. This expectation creates significant problems for historians who investigate cultures that did not explicitly articulate a concept of metaphor (as was true of many, if not most, ancient civilisations).[10] Again, this would mean, in practice, the reframing of the question as a matter of ontological commitment (metaphor vs. truth). By contrast, in this chapter, I have preferred to treat metaphor unequivocally as an *etic* linguistic notion, which primarily focuses on the relationship between a particular usage of terminology and the embodied prototype of the concept in question, allowing the modern scholar to sidestep the problematic question about the ontological commitment of the ancient author.

An additional issue arises concerning the same point. In the phenomenological tradition of philosophy, there are at least two different senses in which we think and talk about the body, which are conventionally designated by the German nouns *Körper* and *Leib*.[11] Differences between these two terms have been examined in detail by philosophers within the phenomenological tradition, and the overall distinction is that of the body as an object among others and accessible to the five senses (*Körper*) versus the direct experience of one's own body as the locus of being-in-the-world (*Leib*).

Many expressions in both modern and ancient languages are regarded as metaphorical primarily because they are thought to refer to body parts as components of the *Körper*, in cases where they evidently cannot have a literal meaning (e.g., being light-hearted clearly has nothing to do with the weight of the cardiac muscle). However, in the phenomenological system of German contemporary philosopher Hermann Schmitz, a great number of linguistic references actually refer to body parts as components of the *Leib*, which Schmitz refers to as 'islands of the *Leib*' (*Leibesinseln*), i.e., parts of the body as

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Science?)," *Journal of the Royal Anthropological Institute* (*N.S.*) 19 (2013): 859–72). The main point here is the basic one that, unlike with traditional notions of metaphor, there is no inherent opposition between the presence of a conceptual metaphor and ontological commitment on the part of the speaker or intended audience (see also the notion of 'semantic stretch' in the sense of G. E. R. Lloyd, discussed below).

[10] As pointed out by G. E. R. Lloyd, *Being, Humanity and Understanding: Studies in Ancient and Modern Societies* (Oxford: Oxford University Press, 2012), 72–73.

[11] For the origin and history of the distinction, see H.-P. Krüger, "Persons and their Bodies: The *Körper/Leib* Distinction and Helmuth Plessner's Theories of Ex-centric Positionality and *Homo absconditus*," *Journal of Speculative Philosophy* 24/3 (2010): 256–74.

experienced directly, for example, in terms of pain or pleasure.[12] In Schmitz's conceptual framework, such 'islands' are perfectly capable of changing shape and size, and even of merging or disappearing completely, depending on the type of embodied experience. This in turn implies that references to such experiences in terms of movement and other changes in location, quantity or quality should be understood perfectly literally, since these references describe parts of the *Leib* where such changes actually do occur:[13]

> (…) z.B. in der Erleichterung, wenn es dem Menschen wie ein Stein vom Herzen fällt, oder in schöner Landschaft, bei deren Bewunderung ihm, wie man sagt, das Herz aufgeht und weit wird. Hier liegt nur scheinbar metaphorisches Sprechen vom Herzen vor, denn metaphorisch wäre die Redeweise nur, wenn sie sich auf das anatomisch zugängliche Herz bezöge; tatsächlich ist aber das Herz als Leibesinsel gemeint.

Against this conceptual background, it becomes imperative to determine whether expressions refer to the body and its parts as objects accessible to the five senses (*Körper*) or whether, instead, what is described is the directly experienced lived body (*Leib*). Only by taking this question into account can we make the distinction between the literal and the metaphorical: Expressions that appear at first glance to be metaphors, because we tend to take for granted that references to the body are matters of anatomy (i.e., the *Körper*), may actually be literal descriptions of the experiences of the movements and changes of the *Leib* and its parts.

Moreover, the situation with medical discourse and other attempts to model the human body may be additionally complicated, because such models often draw on a combination of *Leib* and *Körper* perspectives. Indeed, in Schmitz's framework, the two ideas are opposite poles of a continuum, which consists of varying degrees of what is named the 'körperlicher Leib.'[14] While I agree that important differences in perspective can influence how we view the body, Schmitz's framework ultimately suffers from the problematic convention of interpreting the literal–figurative dichotomy largely in terms of 'truth-functionality.'

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[12] See fundamentally H. Schmitz, *Der Leib* (Bonn: Bouvier, 1965). A concise English introduction to the conceptual framework can be found in H. Schmitz, "The 'New Phenomenology,'" in *Phenomenology World-wide: Foundations—Expanding Dynamics—Life-Engagements. A Guide for Research and Study*, ed. A.-T. Tymieniecka (Dordrecht: Kluwer, 2003), 492.

[13] H. Schmitz, "Leibliche Quellen der Herzmetaphorik," in *Das Herz im Kulturvergleich*, ed. G. Berkemer and G. Rappe (Berlin: Akademie Verlag, 1996), 15.

[14] Schmitz, *Der Leib*, 24–25.

At this juncture, it is important to note that the presence or absence of ontological commitment (in the sense discussed earlier) is not a defining feature of metaphor in conceptual metaphor theory. Since conceptual metaphor works by transferring conceptual structure from one domain to another, it is possible for a metaphorical expression to be regarded either as false or true by the speaker. Thus, the statement 'Achilles is a lion' used of a human warrior is an example where the literal meaning of the sentence is not regarded as true. On the other hand, most English speakers today would not deny the statement 'There are blood vessels in the human body,' since the conceptual mapping of 'vessel' onto arteries, capillaries and veins has been taken for granted as true in modern biomedicine.

This latest example leads us to the second main difference between everyday use of the notion of metaphor and conceptual metaphor theory, i.e., the question of lexicality. In ordinary parlance, the truth-functionality of the expression 'There are blood vessels in the human body' would be explained by the fact that 'vessels' here is not metaphorical, since arteries, capillaries and veins are included in the dictionary definition of what the word 'vessel' can denote. Again, in defining conceptual metaphor as the transference of conceptual structure, there is no contradiction between lexicality and metaphor. On the one hand, there is no doubt that the anatomical use of the term 'vessel' is sufficiently entrenched in modern English to warrant its inclusion as a regular part of the meaning of the word. On the other hand, it is equally clear that this technical usage derives from a more basic or central meaning of the word, which involves a generally impenetrable container of fluids with one or more functionally appropriate openings. Conceptual metaphors should therefore be regarded as a continuum, ranging from completely novel uses of words (e.g., in poetry), to conventional metaphors (such as the various idioms exemplifying LOVE IS A JOURNEY), to fully lexicalised, or even dead, metaphors (such as the blood 'vessel').

The question of lexicality addressed here is also the topic of a very useful discussion by historian of ancient science and medicine, Geoffrey Lloyd, who refers to the concept in terms of 'semantic stretch.' Critiquing the rather unhelpful binary distinction of 'literal' versus 'metaphorical,' Lloyd proposes instead to envision a graded scale:[15]

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[15] G. E. R. Lloyd, *The Revolutions of Wisdom: Studies in the Claims and Practice of Ancient Greek Science* (Berkeley: University of California Press, 1987), 174. Cf. also the most recent discussion in Lloyd, *Being, Humanity and Understanding*, ch. 4.

> It would be better, then (to use a metaphor, but in order particularly to suspend the literal/metaphorical dichotomy), to talk of terms with a more or less obvious, more or less deliberate, semantic stretch. This seems preferable partly because it represents the differences as differences of degree (whereas literal and metaphorical are often construed as mutually exclusive and exhaustive alternatives) and partly because it allows the possibility that in use every term has some stretch—even, at the limit, any term deemed to be univocal.

As an example of semantic stretch, Lloyd refers to Evans-Pritchard's famous ethnographical example of how the Nuer (of present-day South Sudan) classify twins as birds.[16] In this, the Nuer do not mean that twins are *like* birds (which would make this a case of simile or metaphor), but that, in a certain 'real' sense, twins belong to the category of birds. Lloyd argues that "instead of taking this—as others did—to confirm that the Nuer entertained a number of irrational beliefs, it should rather have been concluded that the literal/metaphorical dichotomy was not applicable."[17] To develop Lloyd's argument a little further, we may imagine the Nuer's insistence on the status of twins as birds to be akin to the way modern physicians take for granted the idea of 'blood vessels': It is not that something 'like' vessels exist in the human body (simile); rather, the 'blood vessels' are really there, though they have features that differ from other kinds of 'vessels' encountered in daily life. In other words, labels such as 'vessel' are understood to result from classification (using stretched categories), rather than from comparison.[18] The two cases here are nicely parallel to each other and provide a good illustration of the interplay between ontological commitment and semantic stretch.

The example of 'blood vessels' also suggests an additional point about methodology. The basic or central sense of the word 'vessel' and its extended use in 'blood vessel' share a relationship that is based predictably on well-attested principles of semantic extension. Thus, even if we knew nothing about the biomedical model to which the concept belongs, we would still be able to deduce many basic facts concerning the nature and function of vessels and their relation to blood, simply by applying backwards reasoning to 'metaphorical entailment,' a process by which characteristics of the source domain of 'vessel' are imparted to the target domain of biomedical science. We encounter many parallels to this modern example in the study of ancient medicine, where the precise underlying ancient model remains unknown, and only individual descriptions and designations have survived. It is important that we attempt to account for the logic of 'metaphorical entailment' in cases of terminology whose basic sense is known, rather than simply remarking, as is often the practice, that we are dealing with a specialised 'technical' use of a term, about which nothing more can be said beyond what is explicitly written in the medical texts. Some examples of the recommended methodology will be shown in my case study below.

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[16] E. E. Evans-Pritchard, *Nuer Religion* (Oxford: Clarendon Press, 1956), 130–33.

[17] Lloyd, *Being, Humanity and Understanding*, 76.

[18] The parallelism between these two cases thus concerns primarily the combination of semantic stretch with ontological commitment, not the cross-cultural intelligibility of the respective ideas (which is the connection in which the Nuer example is most frequently cited).

It is admittedly possible, to some extent, to adopt the traditional distinction between the literal and the metaphorical when dealing with ancient medicine. However, in an important sense, the literal–figurative distinction conflates several questions that allow for greater analytical acuity if kept apart, since not every question is equally useful for elucidating ancient conceptions. In particular, we would do well to consider the two main issues discussed earlier (i.e., ontological commitment and lexicality) as separate axes, each of which presents categories that combine to yield a nuanced picture of the literal–figurative distinction. As we have seen, the question of lexicality cannot be easily answered in binary fashion, but is more helpfully articulated in terms of a continuum between two poles. The same is arguably the case for the question of ontological commitment. This is illustrated by idiomatic expressions like 'The sun rises' which is not taken to be a literal description of an astronomical phenomenon by scientifically educated speakers, but rather to be 'true' or 'literal' in a more limited sense.[19] With the two axes intersecting, what we prototypically understand as 'literal' language is located at the upper left, while typically 'figurative' language is found on the right (especially the lower right):

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[19] Note also the diachronic dimension of such expressions: In a geocentric cosmology, 'The sun rises' could in fact have been used with full ontological commitment. Its use as an example here is thus based on its survival in a heliocentric worldview, where it still succeeds in capturing central experiential aspects of the phenomenon, without however constituting an accurate representation of the underlying scientific facts as understood by the speaker.

	Lexically central[a]	**Lexically medial**[b]	**Lexically marginal**[c]
Ontological commitment[d]	Literal language e.g., 'The cat is on the mat'	Technical language e.g., 'blood vessels'	Religious language e.g., 'I believe in God, the Father almighty'
No ontological commitment[e]	Analogy / simile[f] e.g., 'A molecule is like balls connected with sticks'	Idiomatic language e.g., 'The sun rises'	Poetic language e.g., "'Tis the East, and Juliet is the Sun"

a I.e., words used in their standard sense with little 'semantic stretch' and no domain transfer.

b I.e., words used in a sense departing from the central one, with some 'semantic stretch' and domain transfer.

c I.e., words used in novel or otherwise non-standard senses with strong semantic stretch and domain transfer.

d I.e., statements that the speaker would consider 'true'.

e I.e., statements that the speaker would not consider (entirely) 'true'.

f The use of explicit simile ('like') in such cases allows the usage of terms (in this case 'balls' and 'sticks') to remain lexically central. On the other hand a statement without the simile such as 'A molecule consists of balls connected with sticks' would require considerable semantic stretch to allow 'balls' to refer to atoms and 'sticks' to cover electron bonds.

Since conceptual metaphors are not exclusively defined by either truth-functionality or lexical centrality (apart from the fact that transfer across domains must occur), one cannot limit them to any particular section of the chart above. Instead, as can be clearly seen, conceptual metaphors are found in every combination of categories above, encompassing dictionary meanings of words and completely novel figurative expressions, as well as the range of what a speaker considers to be firmly 'true' and what might be regarded as pure similes with no claim to 'truth.'

The framework presented here offers a set of categories for analysing conceptions of the body in ancient medicine that is more fine-grained than the traditional literal/figurative dichotomy. In most medical discourse, there is no particular reason to doubt the ontological commitment of the author to the descriptions made, except in relatively rare cases where these are explicitly marked as merely similes or analogies. As mentioned before, this state of affairs is precisely why traditional approaches to metaphors, which hinge on discovering a medical author's ontological commitment, are relatively unhelpful for studying ancient medical texts.

More generally, in any given study, some of the perspectives discussed here will be highly relevant, while others will retreat into the background. In the case study that will be presented shortly, which deals with heat as symptom and illness in ancient Egyptian medical texts, the phenomenological considerations of Hermann Schmitz doubtlessly play a certain role in elucidating how heat was conceived in embodied experience. In the actual details of the model, however, this aspect does not appear particularly prominent. On the other hand, the vocabulary of heat in the body is consistently drawn from other domains of embodied experience, involving Lloyd's notion of 'semantic stretch' and enabling analyses that draw on key concepts from conceptual metaphor theory.

Even where particular descriptions or expressions involving heat in the body constitute technical uses of language, we will find it enlightening to reconstruct the ancient medical conceptions that motivated such transfers of words and ideas from various source domains to the target domain of Egyptian medicine. In order to do so, we must pay extra attention to the precise, central meanings of terminology employed, while resisting the temptation to dismiss such terminology as 'technical' and therefore necessarily specialized to the point of being unknowable.[20]

3 Egyptian Medical Texts

Judging by the surviving medical texts, ancient Egyptian medicine was generally practically oriented. The most elaborate formulations of medical scenarios are found in the so-called *šsꜣw* or 'instruction' texts,[21] each of which occurs as a string of conditionals of the form 'if you examine a man who …' suffers from this or that symptom, followed by the diagnosis, a verdict on the treatability of the illness, and precise instructions for its treatment. Other templates for Egyptian medical texts derive from this overall pattern, but leave out certain of its features.[22] For the most part, the causes of illness are left unstated, so that it becomes a challenge to identify concepts of aetiology and pathogenesis in these Egyptian texts.

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[20] For the underlying model of category structure, see also R. Nyord, "Prototype Structures and Conceptual Metaphor: Cognitive Approaches to Lexical Semantics in Ancient Egyptian" in *Lexical Semantics in Ancient Egyptian*, ed. E. Grossmann, S. Polis and J. Winand (Hamburg: Wiedmaier Verlag, 2012), 141–74.

[21] See T. Pommerening, "Die *šsꜣw*-Lehrtexte der heilkundlichen Literatur des Alten Ägypten: Tradition und Textgeschichte," in *Traditions of Written Knowledge in Ancient Egypt and Mesopotamia. Proceedings of Two Workshops Held at Goethe-University, Frankfurt/Main in December 2011 and May 2012*, ed. D. Bawanypeck and A. Imhausen (Münster: Ugarit Verlag, 2014), 7–46.

There are a few exceptions, however, such as the so-called 'heart treatise' from Papyrus Ebers of the mid-16th century BCE, which systematically lists the conduits found in the human body responsible for distributing various substances, notably blood and air, to the body parts.[23] In less systematic portions of this treatise, an implied model of the human body may be inferred from glosses that explain individual expressions from a variety of alternative perspectives.[24] These glosses sometimes hint that the heavily metaphorical technical language of the texts may represent merely the visible tip of an iceberg, with underlying models of the human anatomy and causes of sickness left unstated and simply assumed.

Such expressions and the elucidation of their metaphors are sometimes difficult to explicate using traditional philological methods. By drawing upon conceptual metaphor theory and the phenomenological *Körper-Leib* distinction, however, it becomes possible to follow the implied logic that connects metaphors to their source domains.

4 Heat in the Body

Certain experiences of sickness, which can be grouped together and conceptualised in terms of changes in body temperature, provide a good example of how these different perspectives can be combined in ancient Egyptian medicine. On the one hand, heat is a salient aspect of the phenomenological experience of the lived body, even in numerous cases where a thermometer might not register a change in the 'objective' temperature. On the other hand, changes in temperature in various other substances play a role in a wide range of everyday experiences, perhaps most notably in the production and consumption of food, suggesting that such areas of experience could be highly productive as source domains for metaphors.

Unlike many humorological traditions, the Egyptian medical texts do not seem to regard the temperature of the body and its parts as an equilibrium of forces that needs to be sustained. Rather, heat in various forms is portrayed as a sign or cause of illness, while cooling and coolness is its antithesis that leads back to a healthy state.[25] The present case study focuses on the most frequent and conceptually rich term for heat, *tꜣw*,[26] a word employed in other contexts simply to denote high temperature, such as that of a baking oven ready to receive bread.[27] Sometimes, however, the word carries a further nuance of unpleasantly high temperature, as in a literary passage that describes the "stench of carrion on summer days when sky is hot (*tꜣ*)."[28]

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[22] W. Westendorf, *Handbuch der ägyptischen Medizin*, 2 Volumes (Leiden: Brill, 1999), I, 82–96.

[23] *Ibid.*, I, 109–14 and II, 691–98.

[24] *Ibid.*, I, 85–86 and 92–93.

A number of cases either present heat as affecting the entire body of the patient, or characterize particular signs of illness as being hot.[29] However, in this case study, we are interested primarily in the question of the movement and effects of heat within the body, focusing therefore on parts of the body susceptible to instances of heat.

The words used to describe the treatment of heat problems provide the first clue as to how the phenomenon was conceptualised. In addition to general verbs such as *srwḫ*, 'heal'[30] and *jrj*, 'treat' (literally 'do')[31] that do not provide much information about the nature of the problem, the treatment of heat is described by the more specific verbs *dr*, 'drive out' (by far the most frequent verb for treating heat)[32] and *šdj*, 'take out'[33] (see Tables 1.1 and 1.2). The latter two construe heat as an entity attached to or contained within the body part in question and thus capable of being removed, thereby alleviating the condition that it caused. This notion of heat as a discrete entity, basically extraneous to the body and capable of being removed, represents a widespread conceptual pattern in the medical texts and stands in contrast to other imaginable scenarios, such as those that envision heat as an intrinsic quality of the body.

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[25] As cogently pointed out by the reviewer, this may well be connected to the experience of living in a very hot, dry climate like the Egyptian, where occasions to cool down would have been (and indeed still are) generally pleasant and desirable. Certainly, notions of coolness and cooling have much more general connotations of pleasantness and regeneration, cf. e.g. the occurrences of such expressions in R. Nyord, *Breathing Flesh: Conceptions of the Body in the Ancient Egyptian Coffin Texts* (Copenhagen: Museum Tusculanum, 2009), and the discussion of this point at the end of section 4 below.

[26] H. von Deines and W. Westendorf, *Wörterbuch der medizinischen Texte*, 2 Volumes (Berlin: Akademie Verlag, 1961–1962), II, 933–35. Three other roots for high temperature are used less frequently in the medical texts, but otherwise show conceptual patterns similar to those of the root *tꜣw* (references according to the abbreviations and page numbers in H. Grapow, *Die medizinischen Texte in hieroglyphischer Umschreibung autographiert* (Berlin: Akademie Verlag, 1958): *kꜣpw*, 'burning, censing' (Bt 20–24, pp. 253–255), *ꜣmw*, 'incineration' (Bt 31, p. 255), and the *hapax legomenon* of an otherwise unknown root, *qꜣdw*, identified as belonging in this group by its [FIRE] determinative and said to be located in the breast (Eb 186, p. 146). Other roots for high temperature occurring in the medical texts are used rather differently, including *šmm*, 'be hot' used to describe the state of an infected wound (Sm 41, pp. 339–341) and as a general symptomatic state of the 'flesh' (*ḥꜣ*) (Ram III B 8–10); *hh*, 'blast/heat (of fire)' in the *mtw*-conduits or the anus, in turn causing symptoms in the heart (Eb 855d and 855f); and *psj*, 'to cook,' as an effect of a pathogenic substance spreading in the body (855h).

[27] In a caption above a baker saying, 'Hurry up, this (i.e., the oven) is hot (*tꜣ*)!' D. Dunham and W. K. Simpson, *The Mastaba of Queen Mersyankh III G 7530–7540* (Boston: Department of Egyptian and Ancient Near Eastern Art, Museum of Fine Arts, 1974), fig. 11, lower register.

[28] pBerlin 3024, 87–88 = J. P. Allen, *The Debate Between a Man and His Soul: A Masterpiece of Ancient Egyptian Literature* (Leiden: Brill, 2011), 78–80.

[29] All the examples have been conveniently collected in Westendorf, *Handbuch der altägyptischen Medizin*, I, 324ff.

TABLE 1.1 *Body parts affected by heat in the prescriptions for 'driving out* (dr) *heat.' Abbreviations of medical text references according to Grapow 1958.*

Body part	**Heat designation**	**Medical text references**	**Treatment**
Eyes	Heat (*tꜣw*)	Eb 361; Eb 364	External
	Twine of heat (*swš tꜣw*)	Eb 353	External
Heart	Heat (*tꜣw*)	Bt 25	Oral
	Twine of heat (*swš tꜣw*)	Eb 219	Oral
Belly (?)	Heat (*tꜣw*)	Bln 42	⟨Oral⟩
Lower torso	Heat (*tꜣw*)	Eb 175	External
Womb	Heat (*tꜣw*)	Eb 820	External
Bladder	Obstruction of heat (*šnꜥ tꜣw*)	Eb 265	Anal
	Penetration of heat (*hb tꜣw*)	H 70	Oral
Anus	Heat (*tꜣw*)	Bt 16; Eb 154	Oral
		Eb 155	Anal
Anus and bladder	Heat (*tꜣw*)	Eb 139;	Anal
		Bt 10	External
Unspecified	Heat (*tꜣw*)	Bt 27–29	Oral/Anal

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[30] H 69 = Grapow, *Die medizinischen Texte*, 251.

[31] Eb 153 = Grapow, *Die medizinischen Texte*, 249.

[32] See Table 1.1 for attestations.

[33] Eb 142 = Grapow, *Die medizinischen Texte*, 249.

TABLE 1.2 *Other verbs for treating heat. Abbreviations of medical text references according to Grapow 1958.*

Verb	Manifestation	Body part	Treatment	Medical references
šdj, “take out”		Anus	Anal	Eb 142
srwḫ, “treat”	Penetration of heat (*hb tꜣw*)	Bladder	Oral	H 69
jrj, “do”	Obstruction of heat (*šnꜥ tꜣw*)	Anus	Oral	Eb 153

Apart from this simple conceptualisation of heat as an extraneous entity, a small group of nouns are used in the medical texts to specify the particular form of heat. The first of these is the noun *swš*, which is often translated as a ‘ball’ or ‘bundle,’[34] though attestations of the dictionary root suggest a more specific concept.

The word is quite rare, making its choice in the medical context all the more interesting. Used literally, it designates a specific activity in the processing of flax, namely that of twining or twisting flax together, as shown by a 5th Dynasty tomb scene depicting a group of men in the process of bundling flax with the caption: “Binding together flax: twining (*zwš*)[35] twines (*z*(*w*)*š*) to bind together the f[lax].”[36]

A similar process is described in a ritual spell that concludes with instructions for creating an amulet to be used with the spell.[37] After spinning (*sšn*) the flax fibres for the amulet, these are then plied (*msn*)[38] and finally twisted to provide a thick cord that can then be knotted, with the word *swš* used to denote the final stage of the process of preparing the cord.[39]

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[34] von Deines and Westendorf, *Wörterbuch der medizinischen Texte*, II, 733 (‘Band, Ballen, Ballung’); R. K. Ritner, “The Cardiovascular System in Ancient Egyptian Thought,” *Journal of Near Eastern Studies* 65/2 (2006): 106.

[35] The Old Egyptian form of the root under discussion, *zwš* ⟩ *swš*.

[36] W. K. Simpson, *The Offering Chapel of Kayemnofret in the Museum of Fine Arts* (Boston: Dept. of Egyptian and Ancient Near Eastern Art, Museum of Fine Arts, 1992), 17, fig. 15, facsimile F, register 3, pls. 20 and 21b.

[37] pBerlin 3027, vso I,8–II,2 = N. Yamazaki, *Zaubersprüche für Mutter und Kind: Papyrus Berlin 3027* (Berlin: Achet Verlag, 2003), 36.

[38] The fixed sequence of spinning (*sšn*) followed by plying (*msn*) is found in several other passages of the same type, e.g., pBritish Museum EA 10756, B31; pBritish Museum EA 10757, D iii, 5 = J. W. B. Barns, *Five Ramesseum Papyri* (Oxford: Oxford University Press, 1956), pl. 14, 31 and 19, iii, 5; pBerlin 3027, vso I,5–6; VI,1–2; VI,6–7 = Yamazaki, *Zaubersprüche für Mutter und Kind*, 36 and 52.

The salient characteristics of this process, which are transferred to the domain of bodily heat, appear to involve the conjoining of originally separate fibres by means of repeated intertwining, resulting in an increasingly robust assemblage. This metaphor of intertwining does not necessarily envision heat commingling with the body part. Instead, the metaphor focuses on the increasing concentration of heat itself, without challenging the notion that heat was fundamentally extraneous to the affected body part.

A second conceptualisation of heat relates to the verb of movement *hb*, from a root designating a 'plough.' This verb therefore appears to have the basic meaning 'to plough' or, more generally, 'to pierce or penetrate' (e.g., a person by means of a knife),[40] and the meaning can be further extended to signify 'to enter' an inaccessible place.[41] In short, the verb depicts movement that penetrates the surface and reaches into deep places. In the target domain of heat, the metaphor conceives of heat as an independent entity capable of moving around within the body and, more specifically, of penetrating beyond the external surface of a body part and moving deep into it. In addition to its new perspective on the goal-oriented movement and penetration of heat, this metaphor also corroborates the conceptual pattern of heat as independent and basically extraneous to the body part affected.

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[39] That *swš* refers to a repeated, directional process rather than a more general 'bundling' or the like is confirmed by another magical spell instructing the user to make an amulet to be 'twined counterclockwise (lit. to the left) and placed at the neck of the child' (pBritish Museum EA 10756, B23 = Barns, *Five Ramesseum Papyri*, pl. 13, 23). This example also provides a reasonable argument against the more general understanding of the word as meaning 'draw' as favoured most recently by E. Teeter, 'Techniques and Terminology of Rope-Making in Ancient Egypt', *Journal of Egyptian Archaeology* 73 (1987): 76, with references to earlier discussions. While the tomb scenes examined by Teeter are admittedly open to several interpretations, the use of the word in ritual instructions cited here (but not considered by Teeter) indicates that the word can in fact relate to rope-making, making it likely that this is what the scenes described by this word depict.

[40] A. de Buck, *The Egyptian Coffin Texts*, 7 Volumes (Chicago: Oriental Institute, 1935–1961), IV, 322d (T1C^b, T1Be); 330l.

[41] von Deines and Westendorf, *Wörterbuch der medizinischen Texte*, II, 563. For the more precise meaning of the word, cf. the discussion with further references in E. Otto, "Die Verba Iae inf. und die ihnen verwandten im Ägyptischen," *Zeitschrift für ägyptische Sprache* 79 (1964): 43. Because of the Egyptian practice known from pictorial depictions of sowing at the same time as ploughing (spreading seed in front of the plough, so the oxen effectively trampled the seed into the ground), the notion of 'ploughing' is closely connected to that of 'putting/stomping into the ground,' whence the verb also can be used to refer to 'treading' or 'stomping' more generally, and is also used of dancing, cf. J. C. Darnell, "Hathor Returns to Medamûd," *Studien zur Altägyptischen Kultur* 22 (1995): 72 n. 130.

A more specific elaboration of this metaphor occurs in the medical description of a 'nest (*sš*) of heat-penetration.'[42] This expression draws on the imagery of the nests of birds or other animals, being akin to the 'twine' metaphor in its portrayal of heat as a fixed and solid entity. Furthermore, by incorporating the notion of penetration, what results is a complex image of heat moving through the outer layers of a body part in order to settle down and solidify there.

The final form adopted by heat in the medical texts is that of a *šnꜥ*, or 'obstruction.' This dictionary root encompasses a wide range of ideas about hindrances to movement.[43] It is used especially frequently for people or objects kept inside a bounded area, including the confinement of labourers in work camps, as well as the containment of grain in granaries.[44] In medical contexts, the term emphasizes heat's capacity to hinder the movement of other substances by occupying a certain location. In line with other conceptual metaphors that describe heat's movement into body parts, it appears that the settled heat becomes immobile and constitutes an 'obstruction' that blocks the movement of other entities or substances. The most explicit occurrence of this conceptual pattern is in a prescription meant for "Driving out an obstruction of heat from upon the bladder when he [i.e., the patient] suffers from retention of fluid,"[45] which indicates a causal connection between the "obstruction of heat" and the patient's inability to empty his bladder. Once again, it is evident that the conceptual metaphor involving the verb *šnꜥ* does not radically deviate from the verb's prototypical use in describing embodied experience, but instead represents a transference of the latter's conceptual structure to the internal workings of the human body

The charts in Tables 1.1 and 1.2 present an overview of the parts of the body affected by heat. With the exception of the eyes, the affected body parts belong mainly to the insides of the torso, including the heart, womb, bladder, and most frequently the anus. The charts also show the range of therapeutic methods, from external to internal applications of medicaments with the latter administered either orally or anally, often with the same body part treated in different ways.

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[42] Bln 154 = Grapow, *Die medizinischen Texte*, 182.

[43] A. Erman and H. Grapow, *Wörterbuch der Aegyptischen Sprache*, 5 Volumes (Leipzig: J. C. Hinrichs, 1926–1931), IV, 504–05.

[44] *Ibid.*, IV, 507–08, cf. A. H. Gardiner, *Ancient Egyptian Onomastica*, 3 Volumes (Oxford: Oxford University Press, 1947), II, 209*–10*; W. Helck, *Zur Verwaltung des Mittleren und Neuen Reichs* (Leiden: Brill, 1958), 159–62.

[45] Eb 265 = Grapow, *Die medizinischen Texte*, 251.

These charts may also be compared with another that lists the occurrences of instructions for 'cooling' body parts (Table 1.3). Such cooling remedies were often worded in ways that were more or less synonymous with expressed intentions to drive out heat, as in the case of the prescription labelled "Cooling the womb and driving out its heat."[46] At the same time, however, it is also clear that this notion of 'cooling' is broader, frequently encompassing body parts such as 'fingers' or 'conduits' that never occur in connection with heat. As a matter of fact, the root *qbb*, the causative of which occurs in prescriptions for 'cooling' body parts, does not describe low temperature in the abstract. Instead, this term specifically evokes scenarios of pleasant coolness and calmness,[47] aptly expressed in one laudatory metaphor of the king as "a spring shade that is cool in the summer."[48] The broader sense of 'cooling,' therefore, can likely be attributed to its connotation of 'soothing,' even in situations where such 'cooling' is not meant as a direct counter to heat.

TABLE 1.3 *Prescriptions for 'cooling' body parts. Abbreviations of medical text references according to Grapow 1958.*

Body part	Medical text references	Treatment
Head	Eb 259	External
Heart	Eb 235	Oral
Heart and anus	Bt 16; Bt 18; Bt 22	Oral
Fingers and toes	Eb 616 = H 173b	External
Flanks	Bt 32	[...]
Womb	Eb 820	External
Anus	Eb 138; Eb 160; H 93; Bt 14; Bt 25	Oral
	Eb 140; Eb 143; Eb 156; Eb 785 = 143; Bln 179 = Bt 26; Bt 24	Anal
Conduits	Eb 693 = H 121; H 95; H 238; H 249; Ram V No. XII	External
	pLouvre E 4864 vs I,7–8; H 251	[...]
Bone	H 226; H 233	External

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[46] Eb 820 = Grapow, *Die medizinischen Texte*, 484.

[47] Cf. Nyord, *Breathing Flesh*, 90.

[48] pLondon UC 32157 (pKahun LV.1), rto, II, 17 = M. Collier and S. Quirke, *The UCL Lahun Papyri: Religious, Literary, Legal, Mathematical and Medical* (Oxford: Archaeopress, 2004), 16–19.

5 Explanatory Glosses by Egyptian Interpreters

As mentioned above, causal frameworks for Egyptian medicine are evident, not only in rare systematic treatises that explicitly depict anatomical models, but more often in glosses added by later writers (or perhaps, in some cases, the original writer). These glosses represent explanations on various textual expressions, and they were incorporated to such an extent that they were later copied and transmitted along with the original text that they elucidated.[49]

Ancient Egyptian scribes apparently already realized the value of such glosses for reconstructing an underlying conceptual framework, as evinced by some cases in which scribes deliberately collected such glosses separately from the texts they were meant to explain. This was true for a collection of glosses explaining various conditions of the internal organs, which was preserved in the Ebers papyrus as an appendix to the 'heart treatise,' and which the German Egyptologist Wolfhart Westendorf described as illustrating "the birth of anatomy from pathology."[50] The main texts to which these glosses refer have mostly been lost, with the exception of two prescriptions that happen to survive in other manuscripts: one in Papyrus Edwin Smith[51] that shares the same date as Papyrus Ebers around 1550 BCE, and one in the Berlin Medical Papyrus that dates roughly 300 years later.[52]

To elucidate the pathogenesis of heat, we begin by looking at the conceptual structure deducible from the most pertinent glosses in this collection:[53]

> *As for "his sto⟨mach⟩ remains hot and stings," and as for "his interior stings,"* it means that heat has surrounded his heart, and it means that his interior is hot from radiance like a man whom a stinging insect has tortured.

Before going into the details, we should make a quick lexicographical note on the term translated here as "interior," the Egyptian word *jb*. This word is written with a clear ideographical representation of the heart, probably that of an ox.[54]

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[49] Cf. U. Rößler-Köhler, "Text oder Kommentar: Zur Frage von Textkommentaren im vorgriechischen Ägypten," in Text und Kommentar, ed. J. Assmann and B. Gladigow (Munich: Wilhelm Fink Verlag, 1995), 132–35.

[50] Westendorf, *Handbuch der altägyptischen Medizin*, I, 109.

[51] Sm 1 = Grapow, *Die medizinischen Texte*, 299–300.

[52] Bln 154 = Grapow, *Die medizinischen Texte*, 182–83.

[53] Eb 855s = Grapow, *Die medizinischen Texte*, 5–6.

[54] A. H. Gardiner, *Egyptian Grammar, being an Introduction to the Study of Hieroglyphs*, 3rd ed. (Oxford: Griffith Institute, 1957), 465, sign F34.

However, unlike *ḥꜣtj*, the more straight-forward word for heart in Egyptian, e.g., in butchery contexts,[55] the more frequently attested *jb* is involved in a wider range of activities, including digestion, cognition and emotion.[56] This leads to a conundrum from the perspective of modern biomedicine—one would expect that either the Egyptians thought the heart to be involved in these activities, or they did not, and that it should not depend on which of two apparently synonymous words they chose to use.[57]

From a phenomenological perspective, however, this problem becomes much less of an issue, since the terms can be regarded as referring primarily to islands of the *Leib* rather than or, sometimes, in addition to organs of the *Körper*. There is thus no difficulty in following the Egyptian conception of anatomy and treating the two words as designations of different, even if partially overlapping, parts of the body. The involvement of the *jb* in digestion may suggest a region within the torso that is mainly below the heart, whether or not this region encompasses the heart itself, though the extant evidence unfortunately does not allow us to reach a precise decision.[58] It is nonetheless important to maintain a distinction between the two terms, in view of the different conceptual patterns associated with each, even if there is also good evidence that the two body parts are closely related and often influenced each other.[59] Here, therefore, I render the *ḥꜣtj* as 'heart' and the apparently broader term *jb* as 'interior,' without assuming that they necessarily refer to the same internal part in the ancient Egyptian model of human anatomy.

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[55] See R. Nyord, "Taking Phenomenology to Heart: Some Heuristic Remarks on Studying Ancient Egyptian Embodied Experience," in *'Being in Ancient Egypt': Thoughts on Agency, Materiality and Cognition. Proceedings of the Seminar Held in Copenhagen, September 29–30 2006*, ed. R. Nyord and A. Kjølby (Oxford: Archaeopress, 2009), 67–68 for references to this usage.

[56] See the recent overview of previous discussions followed by a corpus-based re-examination of the question in Nyord, *Breathing Flesh*, 55–113. Note that a detailed lexicographic study examining the interrelationship between the two terms concluding that they are synonymous has not appeared so far, making their synonymity more of a traditional assumption than a tested hypothesis.

[57] The most influential alternative suggestion to the traditional understanding of the two terms as synonyms is the hypothesis proposed by T. Bardinet, *Les papyrus médicaux de l'Égypte pharaonique* (Paris: Fayard, 1995), according to which *jb* is a broader designation of all of the organs inside the torso, whence the broader translation as 'interior'. While having the advantage of considerable explanatory power, the hypothesis does have the significant weakness of no direct textual support. Here, I acknowledge that the two terms are clearly treated as separate in the Egyptian texts, while remaining agnostic regarding the specific anatomical identification of *jb*, both due to the lack of certain evidence and for the methodological reason that the *jb* very often occurs as a part of the *Leib* rather than the *Körper*, making the quest for a specific identification in terms of modern anatomy potentially in vain. This view is elaborated and argued in greater detail in Nyord, *Breathing Flesh*, 55–113.

[58] Nyord, *Breathing Flesh*, 108–33.

Returning to the gloss cited above, we learn that the condition described is caused by heat surrounding the heart, and that its radiation affects the interior, so that the interior becomes hot and stings as though from an insect bite.

Another gloss from the same collection sketches a broadly similar development:[60]

> *As for "a twine falls on his heart,"* it means that a twine of heat falls on his heart, it means much weakness (*ꜣhd*), and it means swallowing his interior due to warmth (*ḏnḏ*).[61] It is the heart's being full of blood that causes it, occurring from drinking water. (Also,) eating warm, spoiled fish causes it to occur.

In this second gloss, the problem arises due to the heart being full of blood, probably because heat surrounds the organ and blocks it up, similar to the case mentioned earlier about the obstruction of heat around the bladder. The cause of this problem is, in addition, attributed to drinking water or eating spoiled fish, implying that the ultimate cause of the problem stems from outside substances ingested by the body. “Swallowing the interior” is a frequent idiom for neglect or perhaps, in a more technical sense, unconsciousness, since the interior frequently functions as the seat of cognition and emotion, and its “swallowing” accordingly refers to how its contents are cut off from the outside.[62]

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[59] A good example of a passage that becomes much easier to understand if the assumption of *jb* and *ḥꜣtj* as synonyms is abandoned and the Egyptian wording followed is the gloss 855k from Papyrus Ebers discussed below: '*As for "the* jb *kneels,"* it means that his *jb* is constricted, while his *ḥꜣtj* is in its place with the blood of the pulmonary tract. Under it, shrinkage occurs. It means that the *ḥꜣtj* is hot, so that his *jb* becomes tired under it. His eating is limited, as he is choosy.' Here it seems very likely from the consistent pattern of alternation between the two words in a text which is otherwise highly terse and technical and certainly not noted for its occupation with stylistic refinement, that that scribe had two different referents (or at least functions) in mind when using the two words. Thus Westendorf (*Handbuch der ägyptischen Medizin*, II, 695), otherwise in strong support of the traditional view of the two terms as referring to the same body part, acknowledges that this passage does seem to assume a difference that needs to be reflected in translation: 'Das bedeutet, daß sein Herz (in seiner Eigenschaft als *jb*) eingeschnürt ist, indem sein Herz (in seiner Eigenschaft als *ḥꜣtj*) auf seiner (richtigen) Stelle ist,' etc. Compare this and the interpretation of the passage given below with the translation of both terms as 'heart' by Ritner, "The cardiovascular system," 105: 'That means his heart is constricted, with his heart in its proper position through the blood of the lungs. Through it, shrinkage comes about. That means the heart is hot. The heart is thus weary through it.'

[60] Eb 855v = Grapow, *Die medizinischen Texte*, II.

[61] Cf. H. von Deines, H. Grapow, and W. Westendorf, *Übersetzung der medizinischen Texte*, 2 Volumes (Berlin: Akademie Verlag, 1958), II (Erläuterungen), 30 for the probable anger/heat polysemy of this root.

The final clue to the causal chain underlying these expressions is found in a third gloss:[63]

> *As for “the interior kneels,”* it means that his interior is constricted, while his heart is in its place in the blood of the pulmonary tract. Under it, shrinkage occurs. It means that the heart is hot, so that his interior becomes tired under it. His eating is limited, as he is choosy.

While still focused on the effects of heat, this gloss introduces the new conceptual framework of VERTICALITY inherent in the expression “the interior kneels.” Again, the heart is hot, but the gloss also emphasizes that it is in its proper place. Heat once more affects the interior, but in this case it is explicitly conceptualised in a location below the position of the heart, and what results is “constriction,” “tiredness,” and “kneeling.” The main symptom of this is the lack of appetite, probably to be explained in terms of the afflicted interior being unable to fulfil its usual digestive role.

Combining the evidence on causal connections implicitly or explicitly supplied by the three glosses, we can arrive at an outline of a causal chain (fig. 1.1). In the second gloss above, the cause of the problem is clearly identified as the ingestion of water or warm, spoiled fish, causing blood to fill the heart. In the third gloss, it is simply emphasized that the heart is in its correct position. In all three glosses, heat then affects the heart in ways conceptualised as “surrounding the heart,” “a twine falling on the heart,” or simply the heart “becoming hot.” This in turn affects the interior, with the first gloss keeping its metaphors to the HEAT domain, in describing radiating heat as causing the interior to become hot and stinging. The third gloss, however, conceptualises the event in terms of VERTICALITY, implying that the heart presses down on the interior, causing it to become narrow, constricted and kneeling. In the second gloss, the developing heat leads to unconsciousness of the interior.

Having pieced together the underlying causal framework in this manner, it becomes possible to tackle the difficult and somewhat corrupt text to which several of the Ebers glosses refer, as preserved in the Berlin Medical Papyrus. In citations below from the Berlin papyrus itself, I represent in bold the

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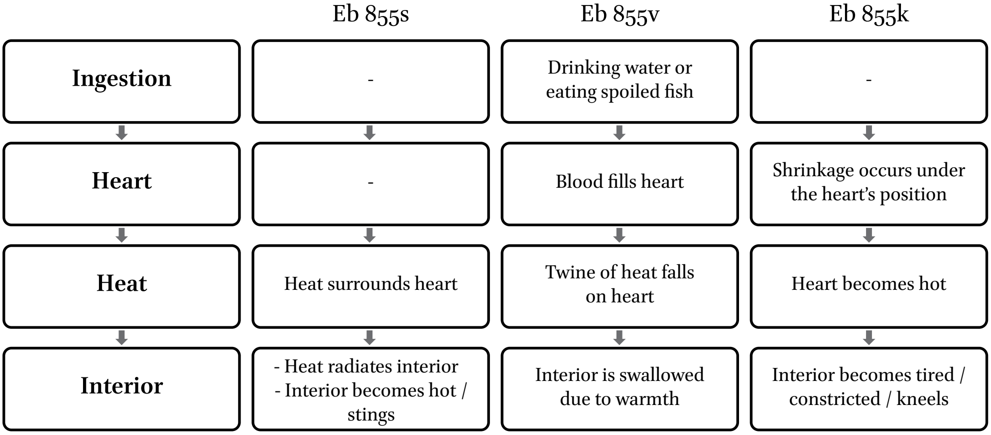
[62] Cf. Nyord, *Breathing Flesh*, 100.

[63] Eb 855k = Grapow, *Die medizinischen Texte*, 7.



	Eb 855s	Eb 855v	Eb 855k
Ingestion	-	Drinking water or eating spoiled fish	-
Heart	-	Blood fills heart	Shrinkage occurs under the heart's position
Heat	Heat surrounds heart	Twine of heat falls on heart	Heart becomes hot
Interior	- Heat radiates interior - Interior becomes hot / stings	Interior is swallowed due to warmth	Interior becomes tired / constricted / kneels

FIGURE 1.1 *Pathogenesis of heat-related symptoms of the interior in three glosses from Papyrus Ebers.*

expressions that are quoted and explained in the Ebers glosses, allowing for occasional minor differences between expressions preserved in the Berlin text and their equivalents in the glosses.[64]

> *Another* (*prescription*) ⟨*for*⟩ *a nest* (šs) *of heat-penetration*. His belly is heavy, his stomach is painful, **his interior is hot and stinging**, his clothes are too heavy for him, he cannot wear many clothes, **his ⟨interior⟩ is dark, so that he tastes his heart, ⟨his interior⟩ is overcast like a man who eats the unnotched fig of sycamores. His flesh is tired like a man whom the road finds**. If he sits down to defecate, his buttocks are heavy, he/it is not proper when defecating.

The majority of technical expressions are explained further in the glosses surviving in the Ebers compendium and, along with the causal framework we have constructed, they are helpful for illuminating several aspects of the text.

We have already looked at the first gloss in detail and observed how heat surrounding the heart radiates, so that the interior becomes hot and stinging:[65]

> *As for 'his sto⟨mach⟩ remains hot and stings,' and as for 'his interior stings,'* it means that heat has surrounded his heart, and it means that his interior is hot from radiance like a man whom a stinging insect has tortured.

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[64] Bln 154 = Grapow, *Die medizinischen Texte*, 182–83.

[65] Eb 855s = Grapow, *Die medizinischen Texte*, 5–6.

After two relatively self-explanatory expressions about the inability to wear clothes—likely owing to the phenomenological experience of heat—we find the description "his ⟨interior⟩ is dark, so that he tastes his heart" glossed in the following way:[66]

> *As for "His interior darkens, so that he tastes his heart,"* it means that his interior is narrow and dark in his belly because of heat, so that he makes instances of swallowing his interior.

The gloss explains the symptom in terms of the interior being "narrow and dark" due to heat. Indeed, we have already seen how lapses of unconsciousness described as "swallowing the interior" occur as symptoms on the same level of pathogenesis as the constriction of the interior, as depicted in fig. 1.1. The notion of "darkness," however, is new. It is possible that the whole scenario is derived metaphorically from the experience of meat being charred from excessive heat, especially since another prescription in Papyrus Ebers explicitly explains a "twine of heat" as being caused by eating charred meat.[67] While it is difficult to substantiate this idea, there is possibly an underlying humorological idea that like causes like, and the ingestion of particular substances leads to metaphorically similar effects within the body.

One may be tempted to connect the idea of "tasting the heart" directly with that of "swallowing the interior," since the two are not only associated together in the gloss, both of them also constitute metaphors derived from the domain of eating.[68] However, it is also worth noting that the conceptual structure is rather different in the two cases. Whereas "swallowing" primarily communicates the notion that the interior becomes cut off from the surroundings, no similar underlying structure is implied by "tasting." It is more likely that "tasting the heart" refers to a different, albeit related, experience, perhaps even the regurgitation of blood, since digestive problems clearly figure prominently in the description. The precise meaning of the expression, unfortunately, remains unclear.[69]

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[66] Eb 855w = Grapow, *Die medizinischen Texte*, 5.

[67] Eb 207 = Grapow, *Die medizinischen Texte*, 164.

[68] Cf. Westendorf, *Handbuch der altägyptischen Medizin*, I, 114.

[69] At the symposium, Robert Ritner kindly alerted me to the possibility that this could also be an instance of the broader meaning of the verb *dp*, 'taste' in the sense of 'experience' (clearly derived via a conceptual metonymy TASTING FOR PERCEIVING), in which case it could refer to a more general means of 'noticing' or 'feeling' the heart, somewhat broadening the range of possible meanings.

The next gloss resorts to lexical substitution in order to explain the meaning, with the expression “the interior is overcast” reframed as “the interior is covered”:[70]

> *As for “His interior is overcast like a man who has eaten unnotched sycamore figs,”* it means that his interior is covered like a man who has eaten unnotched sycamore figs.[71]

This substitution indicates that “overcast” should not be understood here in its primary meaning as “saturated by/overflowing with water,”[72] but instead portrays the inability of the interior to interact with the surroundings, just as an overcast sky is frequently understood as being notionally “clothed” or “covered.”[73]

Whereas several of the glosses slightly deviate in wording from the main text (in some cases clearly due to the corrupt transmission of the main text), this final gloss below shows more substantial differences:[74]

> *As for “His entire flesh is hot like the tiredness of the interior of a man whom the road has found,”* it means that his flesh is tired under it like the tiredness of the flesh of a man under a long walk.

Following the wording cited in the gloss (i.e., “*His entire flesh is hot like the tiredness of the interior of a man whom the road has found*”), this would be another example of a lexical substitution, wherein “tired interior” is substituted by “tired flesh.” This connection between heat and tiredness has been noticed a number of times already, and the explanation here probably takes into account a largely ‘dead’ metaphor known especially from religious texts, where ‘tiredness of interior’ is a technical expression of the inert and latent state of existence of the dead god Osiris.[75] Here, the gloss clarifies that the expression refers instead to general tiredness and exhaustion, as opposed to either this religious meaning or another technical description of a state of the interior.

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[70] Eb 855t = Grapow, *Die medizinischen Texte*, 5.

[71] Sycamore figs need to be notched for the fruit to ripen, so eating unnotched figs would have been the cause of the digestive problems described here, cf. D. Zohary, M. Hopf, and E. Weiss, *Domestication of Plants in the Old World*, 4th ed. (Oxford: Oxford University Press, 2012), 130–31.

[72] W. A. Ward, “The Biconsonantal Doublet *gp/gb*, ‘Overflow,’” *Journal of Egyptian Archaeology* 59 (1973): 228–31.

[73] Several examples of an overcast or stormy sky being “clothed” or “covered,” and a clear sky being correspondingly “bared,” have been collected by J. C. Darnell, “The Message of King Wahankh Antef II to Khety, Ruler of Heracleopolis,” *Zeitschrift für ägyptische Sprache und Altertumskunde* 124 (1997): 103–06.

[74] Eb 855x = Grapow, *Die medizinischen Texte*, 5.

[75] Erman and Grapow, *Wörterbuch der Aegyptischen Sprache*, I, 338.

Although several features of the prescription in the Berlin Medical Papyrus remain obscure—partly because of textual corruption, and partly also because many of the concepts have no other attestations—the overall framework of bodily heat that we have worked out allows us to identify a number of recurrent and connected phenomena. We may therefore observe the links between heat, the isolation of affected body parts from their surroundings, the lack of strength and digestive problems. The precise interrelationship between the heart and the interior is not particularly clear in the medical prescription, and this may be precisely the reason the point is given so much prominence in several of the explanatory glosses.

To summarise, in both the prescription and the different glosses examined earlier, we observe a general trend of heat spreading inside the body, usually beginning in the heart where it exerts various adverse effects on the interior, which are conceptualised by drawing on metaphorical expressions from a wide range of experiential domains. In this way, the phenomenon of heat offers a promising starting point for a broader examination of the interplay among internal body parts in Egyptian medicine. Moving beyond the rare exemplars that explicitly describe the workings of human anatomy, much more can be learned by paying attention to the conceptual patterns of 'substances' understood as moving among and affecting the different parts of the body.

6 Conclusion

A methodology that draws on conceptual metaphor theory and that incorporates central insights from other approaches allows us to avoid many of the problems connected with traditional notions of metaphor, while at the same time sensitising us to more implicit conceptual connections found in medical texts. In this way, it becomes possible to study, not only anatomical and physiological models based on a single overarching conceptual metaphor (such as the 'plumbing system' of a widespread modern Western folk model of the human body),[76] but also more complex models that draw on a wide range of embodied experiences for their construction. Focusing on conceptual patterns of medical language itself, this approach also offers a workable alternative to traditional scholarship, which tends to judge ancient medical texts on the basis of how well they reflect the elements of modern biomedical models, to the extent of which they are declared to be 'right' or 'wrong.'

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[76] C. G. Helman, *Culture, Health and Illness*, 4th ed. (London: Arnold, 2001), 21.

The phenomenon of heat in ancient Egyptian medical texts offers a very good illustration of these points. ‘Heat’ as understood in the medical texts clearly has no one-to-one correlate in a modern biomedical model of human physiology, nor is it structured by a single overarching conceptual model. Instead, the workings of heat in the body are conceptualised by means of projections from a wide range of experiential domains, including cooking, agriculture and cordage-making, in addition to more general experiences involving paths of movement, force and obstruction. The model is then used as an explanatory key to the symptoms and experiences of the patient, drawing on ancient anatomical and physiological models that have not been preserved for us in writing, but whose overall structure may be glimpsed through patterns of conceptualisation applied to heat and other related phenomena.

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CHAPTER 2

From Head to Toe: Listing the Body in Cuneiform Texts

M. Erica Couto-Ferreira

The vocabulary list Ugu-mu "my skull," dating to the Old Babylonian period (ca. 1st half of the 2nd millennium BCE), collects together a wide range of terms related to the human body. Created for didactic use in southern Mesopotamian scribal schools, Ugu-mu organised its contents *a capite ad calcem*, beginning with "my skull" and proceeding down the human body systematically. Despite its importance in the Old Babylonian curriculum, Ugu-mu seems not to have been uniformly accepted as a tool for teaching Sumero-Akkadian vocabulary and cuneiform writing, since it became no longer attested in scholar curricula of later periods. Its principle of organisation from-head-to-toe, nonetheless, survived the list itself, and continued to be employed in a great variety of text types, in ways that bring to light aspects of body representation and meaning, as well as the relationship between the part and the whole in human and non-human bodies.

1 Ugu-mu and Principles of Sumero-Akkadian Partonomy

The Old Babylonian lexical list Ugu-mu gathered together vocabulary on parts of the body, alongside other semantically and conceptually related terms, such as expressions and words describing the nature or appearance of specific sections of the human anatomy.[1] Ugu-mu is known to us in two versions, one monolingual (Sumerian) and one bilingual (Sumerian-Akkadian). It served as

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[1] For its most recent edition and bibliography, see M. É. Couto-Ferreira, "Etnoanatomía y partonomía del cuerpo humano en sumerio y acadio: El léxico Ugu-mu," Ph.D. diss., Universitat Pompeu Fabra, Barcelona, 2009, http://repositori.upf.edu/handle/10230/12153. For the Ugu-mu tablets SC 2745, SC 2888, and SC 4146, see M. Civil, *The Lexical Texts in the Schøyen Collection*, Cornell University Studies in Assyriology and Sumerology 12 (Bethesda: CDL Press, 2010), 148–62. For the trilingual KBo 13, 2, see Y. Cohen, "The Ugu-Mu Fragment from Ḫattuša/Boğazköy Kbo 13.2," *Journal of Near Eastern Studies* 71/1 (2012): 1–12. For tablet LB 2783, see

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a didactic device in *edubba* scribal schools, in order to teach the intricacies of writing and reading a lexicon of the body.[2] The list followed the principle of *a capite ad calcem* in the presentation of its contents, and ranks among the most significant exemplars of Sumero-Akkadian partonomy, revealing ancient ethnographic conceptions about the body and its division.[3] Ugu-mu begins from the head ("my skull / top of the head") and proceeds downwards to the toe. The main sections and terminology preserved in the longest versions of the list tend to follow the order in Table 2.1. The versions that survive most completely, moreover, include a final section with terms pertaining to the general body, physiology, pathology, and age, among other topics.[4] A detailed examination of the list shows that the more general term (i.e., the label designating the larger body part) is allotted first position in its section or subsection, while more specific terms (i.e., labels for smaller body parts) are subsequently listed under it. In every instance, the 1st person possessive pronoun ("my") qualifies the body part.[5]

R. de Boer, J. G. Dercksen, and Th. J. H. Krispijn, "Cuneiform Documents from Various Dutch Collections," *Jaarbericht Ex Oriente Lux* 44 (2012–2013): 177–78.

[2] For an overview of the curriculum of Old Babylonian schools, see N. Veldhuis, *Religion, Literature, and Scholarship: The Sumerian Composition Nanše and the Birds with a Catalogue of Sumerian Bird Names* (Leiden: Brill, 2004), 58–66.

[3] Partonomy refers to any hierarchy based on "part-whole" relationships. For a recent treatment and bibliography on partonomy and the conceptualisation of the body, see A. Wierzbicka, "Bodies and Their Parts: An NSM Approach to Semantic Typology," *Language Sciences* 29 (2007): 14–65.

[4] SC 2888 in Couto-Ferreira, "Etnoanatomía y partonomía del cuerpo humano," 61–69; Cotsen 122 in M. Wilson, *Education in the Earliest Schools: Cuneiform Manuscripts in the Cotsen Collection* (Los Angeles: Cotsen Occasional Press, 2008).

[5] Each Ugu-mu entry is constructed with the possessive pronoun of the first person singular, -mu (-ŋu$_{10}$) in Sumerian, and *–ī* or *–ya* in Akkadian. The use of the possessive has been interpreted as a mechanism to make it easier to learn vocabulary through oral repetition (A. Cavigneaux, "Lexikalische Listen," *Reallexikon der Assyriologie und vorderasiatischen Archaologie* 6 (1980–1983): 630, §18.3). The students in the *edubba* could have accompanied the recitation of each term with the action of pointing the matching anatomical part in the own body. This hypothesis is, however, hard to sustain, especially in those cases where internal organs, subsections of the eyes, and other particularly "hidden" or very specific body parts are mentioned. Other hypotheses based on linguistic, semantic and anthropological considerations point at the use of the possessive pronoun as a mark of the inalienability principle which would indicate the indispensable and natural human possession of a body part (see Civil, *The Lexical Texts in the Schøyen Collection*, 148). For a theoretical frame, see H. Chappell and W. McGregory, eds., *The Grammar of Inalienability: A Typological Perspective on Body Part Terms and the Part-Whole Relation* (Berlin: de Gruyter, 1996).

TABLE 2.1 *Main anatomical sections in Ugu-mu*

Head
Hair and hair styles
Face / countenance
Other terms related to the head
Eye
Cheek
Nose
Lip
Mouth
Tongue
Teeth
Voice articulation
Lower part of the face
Neck
Arm and hand
Trunk (chest and back)
Internal anatomy
Lower body
Genitals
Leg and foot

SC 2888 iii 14–31, § 4.4.1[6]

igi-mu	= *i-ni*	"my eye"
pa-igi-mu	= *ka-ap-pi i-ni-*[*i*]*a*	"the eyelid (lit. wing) of my eye"
gakkul-igi-mu	= *ka-ku-*⸢*ul*⸣*-ti i-ni-ia*	"the eyeball of my eye"
^{d}lamma-igi-mu	= *la-ma-a-su i-ni-ia*	"the protective guardian of my eye"
gi$_{6}$–igi-mu	= *ṣú-lum i-ni-ia*	"the black of my eye"
babbar-igi-mu	= *pu-ṣú i-ni-ia*	"the white of my eye"
zalag(ud)-igi-mu	= *nu-úr i-ni-ia*	"the light of my eye"
šà-igi-mu	= *li-bi i-ni-ia*	"the inside of my eye"
[n]a$_{4}$–igi-mu	= [*a-ba-an*] *i-ni-ia*	"the stone of my eye"

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[6] See Civil, *The Lexical Texts in the Schøyen Collection*, 4.3.

Ugu-mu, therefore, may be described as a vocabulary constructed on the principle of partonomy that clarifies relationships between the part and the whole, employing its head-to-toe order as a strategy of encompassing and mapping out the entire body both internally and externally.

Nevertheless, it is true that Ugu-mu seems to disappear from the scribal curriculum after the Old Babylonian period (ca. 1st half of the 2nd millennium BCE), and was replaced by other lexical compositions in later periods,[7] implying its status as some sort of failed lexicographical experiment. According to my hypothesis, Ugu-mu was phased out in preference of other lexical lists that were organised following acrographic or other non-positional or non-contiguous, non-body-related principles, which the ancient scribes considered more effective for teaching both cuneiform writing and specific Sumero-Akkadian vocabulary, as evident from their continued transmission of lexical lists such as Hh. XV.[8] Although Ugu-mu vanished from the curriculum, however, its principles of organisation survived and may be observed in several other types of cuneiform text compositions.[9] Indeed, one might even say that the head-to-toe order, despite its shortcomings as a principle for organising lexical lists, was found to be more suitable for the purposes and contexts of other text genres. Deviating from the narrowly didactic aims of Ugu-mu, these other cuneiform text types employed the *a capite ad calcem* sequence in order to convey a range of different ideas for understanding the body.

Mesopotamian texts are replete with examples of metaphoric language employed to describe features of the human body. The hydraulic model of irrigation canals, for example, contributed to how the ancients conceptualised and explained aspects of the female body. So-called 'body-of-the-god' compositions describe the divine anatomy by comparing or identifying each of its parts with a plant, metal, animal, or object. In some cases, syncretism is expressed by equating various gods and goddesses with individual body parts belonging to a single deity.[10] In yet other instances, the human body and its constituents were used to describe and confer meanings on non-human entities (hybrids, demonized creatures, deities), features of the landscape, and even cosmogonic beings and events (e.g., Tiāmat and the creation of the world).

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[7] There are two exceptions known to me. The first one is a fragment from a trilingual Hittite tablet recently published by Cohen ("The Ugu-Mu Fragment from Ḫattuša/Boğazköy Kbo 13.2") that only preserves the Hittite column. Although it shares certain formal traits with Ugu-mu (e.g., use of possessive pronouns), it cannot be properly considered a version of the list. The second example is the bilingual fragment from Nippur 13N-179, which probably dates back to the 8th century BCE. It is a true rarity, since it was copied when Ugu-mu had long been removed from the school curriculum (Couto-Ferreira, "Etnoanatomía y partonomía del cuerpo humano," 18 §4.1).

[8] M. Civil and B. Landsberger, *The Series 'HAR—ra = hubullu': Tab. XV and Related Texts* (Roma: Pontificio Istituto Biblico, 1967), 6–15. Cf. examples pertaining to the vocabulary of Ebla in G. Pettinato, *Testi lessicali monolingui della biblioteca L. 2769* (Napoli: Istituto Universitario Orientale di Napoli, 1981), texts 68, 70 and 71, which gather anatomical terms constructed mainly from sag, igi, and ka.

[9] On the physiognomic series, see B. Böck, *Die Babylonisch-Assyrische Morphoskopie* (Wien: Institut für Orientalistik der Universität Wien, 2000). On the diagnostic and prognostic series, see R. Labat, *Traité akkadien de diagnostics et pronostics médicaux* (Paris: Académie internationale d'histoire de sciences, 1951); N. P. Heeßel, *Babylonisch-assyrische Diagnostik* (Münster: Ugarit-Verlag, 2000). On *Šumma izbu*, see E. Leichty, *The Omen Series Šumma Izbu* (Locust Valley, New York: Augustin, 1970).

It is important to notice how head-to-toe narratives, following in the Ugu-mu tradition, tend to privilege the human body and anthropomorphic morphology in general (and, less prominently, animal bodies) as the lens through which one obtains perspectives on non-human realities. These narratives serve metaphoric functions, in that they facilitate the "likening, comparing, or analogizing" of two subjects, or the description of one object by means of another. Such analogies are not merely formal, but also invest their subjects with aetiological and explanatory meanings, which hint at the workings of the world humans inhabit, and how they should conduct their behaviour within its order. As Raymond W. Gibbs correctly states, "metaphor is not simply an ornamental aspect of language, but a fundamental scheme by which people conceptualize the world and their own activities."[11]

In this chapter, I carefully examine head-to-toe narratives pertaining to both human and extra-human beings, in order to illuminate the rationale of the *a capite ad calcem* descriptions and the different purposes they served. Among the examples below, those that enumerate human body parts in literal, non-metaphoric ways (esp. §3) help to provide orientation for other cases where the body described represents a product of analogical thinking.

2 Gods, Hybrids, and Other Creatures: Embodiment, Empowerment, and Representation

Head-to-toe lists of the body occur in the depiction of deities, hybrids (*Mischwesen*), and other monstrous creatures and beings in Mesopotamia's literary and religious-theological traditions. In the following example from the Old Babylonian composition *Lament of Uruk*, the head-to-toe sequence traces out the terrifying anthropomorphic image of the deluge, a divine weapon sent to wreck destruction among humankind:

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[10] A. Livingstone, *Mystical and Mythological Explanatory Works of Assyrian and Babylonian Scholars*, (Oxford: Oxford University Press, 1986), 92–112. For an attestation of the Zodiac Man in late cuneiform tradition, see J. Z. Wee, "Discovery of the Zodiac Man in Cuneiform," *Journal of Cuneiform Studies* 67 (2015): 217–33.

[11] R. W. Gibbs, *The Cambridge Handbook of Metaphor and Thought* (Cambridge: Cambridge University Press, 2008), 3.

> ***Lament for Uruk*, segm. E, 14–24**[12]
> In the battle, his front / frontal part (lit. top / skull, ugu) will be a pointed axe; in his back (eĝir) will be a PA.ḪAR weapon;
> His grown hair (siki) will be a harrow; his shoulder (murgu) will be fire.
> His forehead (sag-ki) will be an evil storm that will cover heaven and earth.
> Like a light that flashes like the Anzu bird, he will see far (away) (igi … bar-re-dam).
> His voice (gù) will be furious, a fire that burns the distant mountains.
> His tongue (eme) will be a flame, embers that rain breaking the land.
> His arms / wings (á) will be the great Anzu bird that nothing can escape.
> His ribs (ti-ti) are like bars that let light pass.
> Knotted at his waist (šab-ba) shall be city-destroying sling stones.
> Its thighs (ḫáš-gal) shall be cutting knives, covered with gore, that make blood flow.
> Its muscles (sa-sa) shall be saws that slash, its feet (gìr) those of an eagle.

The composition above illustrates the roles that body parts can play in "embodiment" narratives, with embodiment here referring to the "representation or expression of something abstract in a tangible or visible form," or the "representation in a corporeal or physical form."[13] This particular passage in the *Lament* represents the obliterating power of the deluge, by means of an anthropomorphic or anthropomorphised depiction, in concrete ways that are therefore circumscribed, familiar, and knowable. Dissonance is created by the fact that, though bodily sections enumerated in the composition (i.e., top of the head, hair, tongue, arms, etc.) collectively present a relatable physical image, attributes and behaviours of each of these body parts (i.e., skull that is an axe, face that is a storm, back that is fire, etc.) evoke wild, uncontrolled and destructive forces unleashed by the deluge. The narrative technique portrays destruction, not as generic and aimless chaos, but as a personified unity to which one might ascribe purpose and even malice.

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[12] Adapted from edition in M. W. Green, "The Uruk Lament," *Journal of the American Oriental Society* 104/2 (1984): 269–70, lines 3.4–3.14.

[13] Oxford English Dictionary online, accessed 6 November 2014.

In the description of mythological beings, deities, hybrids and other creatures, bodily traits chosen not only make such beings more recognizable, they also have the potential to emphasize any peculiar characteristics or qualities. Anatomical descriptions do not need to cover as many body parts as possible, since the very selectivity of a portrait conveys the perspective through which the author wishes an entity to be seen. The disease known as *samana*, for instance, is depicted in a Sumerian incantation after the following manner:

> **AO 11276: obv. 2–5, rev. 18–20**[14]
> Samana (with) the **mouth** (ka) of a lion,
> **Teeth** (zú) of a dragon (lit. of an *ušumgal* serpent),
> **Claws** (lit. legs, úr) of an eagle,
> **Tail** (kun) of a scorpion.

Mouth, teeth, claws and tail represent the most lethal body parts belonging to dangerous and aggressive predators (lion, *ušumgal*, eagle, scorpion), and they serve to imbue the disease with an aura of peril, as well as suggest the mindset and approach (i.e., that of a cautious hunter) healers ought to adopt when performing their incantation or applying other means of therapy to the disease.

Selective depictions of body parts are even more evident in so-called *Göttertypentexte*,[15] which focus on the iconographical aspects of various deities.[16] In these compositions, godly attributes and traits are portrayed in *a capite ad calcem* sequence, in a systematic procedure that ensures proper recognition of the deity's figure in its totality, with no divine aspect left overlooked (see Table 2.2).[17] Special emphasis is also placed on the clothing, apparel (e.g.,

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[14] See discussion and bibliography in I. L. Finkel, "A Study in Scarlet. Incantations against Samana," in *Festschrift für Rykle Borger zu seinem 65. Geburtstag am 24. Mai 1994*, ed. S. M. Maul (Groningen: Styx, 1998), 73–74.

[15] F. Köcher, "Der babylonische Göttertypentext," *Mitteilungen des Instituts für Orientforschung* 1 (1953): 57–107.

[16] F. A. M. Wiggermann points out that these texts might have described the images of gods depicted on the walls of a Kassite temple, in "The Mesopotamian Pandemonium: A Provisional Census," *Studi e Materiali di Storia delle Religioni* 77/2 (2011): 298.

[17] See also *The Netherworld Vision of an Assyrian Prince*, in W. von Soden, "Die Unterweltsvision eines assyrischen Kronprinzen," *Zeitschrift für Assyriologie und vorderasiatische Archäologie* 43 (1936): 1–31; A. Livingstone, *Court Poetry and Literary Miscellanea* (Helsinki: University Press, 1989), 71–72, text 32, esp. rev. 2–11. This literary composition offers a brief version of Göttertypentexte-like description of infernal or chthonic beings.

misarru "belt"; *kubšu* "turban"; *šukūsu* "a headdress"; *lubuštu* "clothing, garment"; *aguḫḫu* "sash, belt"; (*ḫ*)*ullu* "neck ring, torque"); weapons (e.g., *karṣillu*, *k/qulmû* "axe"; *šibirru* "shepherd's staff, sceptre"; *banduddû* "bucket"; *nignakku* "incense (burner)"), and posture (e.g., on a throne) of the divine figures.

TABLE 2.2 *Main physical body features described in the* Göttertypentexte

Term	**English translation**
SAG.DU (*qaqqadu*), UGU (*muḫḫu*)	head
šartu, *pursāsu*,	hair, hair dress
kubšu	head apparel
SI (*qarnu*)	horn
pānu	face / countenance
lētu	cheek
appu	nose
pû	mouth
ḫuṭṭimmu	snout
EME (*lišānu*)	tongue
GEŠTUG$_2$ (*uznu*)	ear
rittu	hand
ZAG (*imittu*)	right (hand)
GÙB (*šumēlu*)	left (hand)
GABA (*irtu*), UBUR (*tulû*)	breast, female breast
pagru	body /trunk
KUN (*zibbatu*)	tail
kantappu	fish tail (?) / fin (?)
kappu	wing
GÌR$^{\mathrm{II}}$ (*šēpū*/*ā*(*n*))	(two) feet

> ***Göttertypentext* iv 5–22**[18]
> The **head** (SAG.DU) (has) a turban (*ku-ub-šu*). The snout (*ḫu-uṭ-ṭi-im-mu*) is (that of) [an a]pe.
> She (has) a **horn** (SI) like (that of) a gazelle; one of them is short towards the back.

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[18] I follow the translation in Köcher, "Der babylonische Göttertypentext," 72–75.

She (has) a horn (SI) like (those of) a gazelle; the other in (its) front is excessively long.
The **ear** (*uz-nu*) is (that of) a sheep, the **hand** (*rit-ta*), (those) of a man.
In both her (hands) she bears a bread and
Takes (it) to her **mouth** (KA).
Her **body** (*pa-gar-ša*) is (that of) a fish, she bends backwards.
She has a **tail fin** (?) (*kan-tap-šá*).
The **hair** (*šar-tum*) falls between her horns
Along her **back** (*ša-šal-li-ša*)
So that (it) envelopes her tail fin (?).
From her **waist** (MURUB) to her tail fin (?) she is a do[g].
The pedestal where she stands
Is surrounded by tiaras.
She is dressed / **covered with scales** (*qú-lip-ta*) like a *purādu* fish.
Her name: Amma[kurkur],
(She is) the chosen of Ereškigal,
(She) pertains to Ereškigal.

A subversion of the expectations we find in *Göttertypentexte* plays out in the Sumerian myth *Inanna's Descent to the Netherworld* (lines 129–60) and its Akkadian version *Descent of Ištar to the Netherworld* (lines 42–62),[19] where the head-to-toe order is employed, not as a celebration of divine traits, but as a narrative on the progressive loss of the deity's power. In the myth, when the goddess Inanna (known in Akkadian as Ištar) descends to the Netherworld in order to visit her sister Ereškigal, she is forced to leave one piece of her clothing or adornment at each gate of the Underworld she passes through, until at last she is stripped of everything she wears (see Table 2.3). These pieces of garment and accessories have been identified as the concrete manifestations of seven divine qualities, each known as a "me," which the goddess wears before undertaking a journey.[20] The undressing process begins with the turban of her head, moves on to accessories adorning her neck, breast and hand in head-to-toe fashion, before ending in a general way with the garment covering her "outside" (i.e., body). This progressive undressing, which culminates in the naked body of the goddess, signifies the thoroughly complete deprivation of power that Inanna is subjected to in the realm of Ereškigal, until Inanna is finally transformed into mere flesh (see *Inanna's Descent to the Netherworld*, 171–72). The reversal of this process is preserved in the Akkadian version of the myth, where Ištar reacquires her powers by means of recovering her pieces of apparel and accessories, when she once again passes through the seven gates of the Underworld in the opposite direction (*Descent of Ištar to the Netherworld*, 119–25).

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[19] For the transliteration of the text, see R. Borger, *Babylonisch-assyrische Lesestücke* (Rome: Pontificio Istituto Biblico, 1979), 95–104. For a recent translation and bibliography, see B. R. Foster, *Before the Muses: An Anthology of Akkadian Literature* (Bethesda: CDL Press, 2005), 498–505.

[20] See discussion and bibliography in L. Verderame, "La vestizione di Inanna," in *Abiti, corpi, identità. Significati e valenze profonde del vestire*, ed. S. Botta (Firenze: Società Editrice Fiorentina, 2009), 69–72. In fact, the me's are not merely abstract laws, powers, and capacities, but possess specific physical qualities: they are "oggetti materiali, suscettibili di essere manipolati e trasportati." G. R. Castellino, "Il concetto sumerico di 'me' nella sua accezione concreta," *Analecta Biblica* 12 (1959): 25.

TABLE 2.3 *List of Inanna's / Ištar's me's corresponding to the body part on which they are placed*

Gate	**Inanna's descent**	**Ištar's descent**
First	Turban headgear[a] on her head (saĝ)	Tiara on her head (SAG.DU)
Second	Beads around her neck (gú)	Earrings in her ears (GEŠTUG^{II}.MEŠ)
Third	Twin egg-shaped beads on her breast (gaba)	Beads around her neck (GÚ)
Fourth	Pectoral on her breast (gaba)	Toggle-pins, pectorals (*dudinātu*)[b] of her breast (GABA)
Fifth	Golden ring in her hand (šu)	Girdle of birth-stones around her waist (MURUB$_4$)
Sixth	Measuring rod and measuring line in her hand (šu)	Bracelets / Rings around her hands (ŠU^{II}) and feet (GÌR^{II})
Seventh	The pala dress on her body (bar = "outside")	Garment of her body (*zumru*)

[a] In one manuscript, there is additionally a measuring rod and a measuring line (see *Inanna's Descent to the Netherworld*, 129, in eTCSL, accessed 11 December 2014).

[b] Cf. CAD D sub *dudittu*, pp. 168–170 "pectoral." CAD points out the *dudittu* "was worn exclusively by goddesses and women" (p. 170). It was most probably a toggle-pin. For a full discussion of the term, see H. Klein, "Tudittum," *Zeitschrift für Assyriologie und Vorderasiatische Archäologie* 73/2 (1983): 255–84.

3 Anatomical Descriptions and Diseased Bodies

The Sumerian myth *Enki and Ninhursaĝa* recounts how the god Enki had become ill, after eating the eight plants that had sprouted from the ground from his own semen. A head-to-toe description of Enki's diseased body may reflect the perspective and movement of a healer's surveying eye. In this case, it is the goddess Ninhursaĝa who intervenes and—perhaps alluding to the idea that a pregnant woman's labour pains are alleviated by birth—proceeds to ease the pain of 'self-impregnated' Enki by helping him give birth to various deities from the diseased body parts. This theogony, in fact, plays on the name by which each deity was already known, by ascribing to each name a contrived etymology based on terms for Enki's affected body parts: The goddess Ninsikila, for instance, whose name consists of the elements nin ("lady") + sikil ("pure"), is said to derive from Enki's "hair" (siki). The narrative begins with the top of the head and ends, in this case, with the flanks:

> (Ninhursaĝa asked:) "My brother, what part of you hurts you?" "The **top of my head** (ugu-dili) hurts me." She gave birth to Ab-u out of it. "My brother, what part of you hurts you?" "The **locks of my hair** (pa siki) hurt me." She gave birth to Ninsikila out of it. "My brother, what part of you hurts you?" "My **nose** (kir_4) hurts me." She gave birth to Ningiriutud out of it. "My brother, what part of you hurts you?" "My **mouth** (ka) hurts me." She gave birth to Ninkasi out of it. "My brother, what part of you hurts you?" "My **throat** (zi) hurts me." She gave birth to Nazi out of it. "My brother, what part of you hurts you?" "My **arm** (á) hurts me." She gave birth to Azimua out of it. "My brother, what part of you hurts you?" "My **ribs** (ti) hurt me." She gave birth to Ninti out of it. "My brother, what part of you hurts you?" "My **sides** (zag) hurt me." She gave birth to Ensag out of it.
>
> *Enki and Ninhursaĝa*, 254–271

As might be expected, anatomical descriptions are also very much a feature of medical texts. As part of healing incantations and ritual-related contexts, they are employed to invoke protection over the entirety of the healer's or the patient's body, or to transfer disease from the patient to a scapegoat or effigy. This sense of completeness is achieved by listing in minute detail a long series of anatomical terms, since the body was at least the sum of its parts. In incantations from the Old Babylonian forerunner to the series Udug-hul, a large number of body parts are enumerated as part of the formulaic chant "May you not approach his {body part}," casting protection over the entire body against the malicious action of demons (Table 2.4).[21] Similar ideas persisted in bilingual versions of Udug-hul (Akk. *utukkū lemnūtu*) that were standardized at a later period. In the following example, various demons and evil beings are imagined as being assigned to attack specific parts of victim's body, in a systematic head-to-toe order:[22]

TABLE 2.4 *Body parts to be protected against the actions of the Udug-hul (text Ni 630, with corrections in Geller,* Healing Magic and Evil Demons, *543–44)*

Sumerian	**Akkadian gloss**	**English translation**
kiri$_x$ (ka×im)		nose
ka	*pû*	mouth
nundun		lip
geštug$_2$–ga		ear
te		cheek
gú-sa	*birti aḫī*	neck muscles (Sum.); (the space) between the arms, chest (Akk.)
gú		neck
á		arm
šu		hand
á-zi-da		right arm
á-gùb-bu		left arm
gaba		chest
giš-gaba		breastbone
šà-ga		belly, insides
lipiš		belly, insides
sag lipiš		top of the belly, insides
ka-kešda lipiš		knot of the belly, insides
murgu	*būdu*	shoulder
gú-murgu		backbone

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[21] M. J. Geller, *Forerunners to Udug-Hul: Sumerian Exorcistic Incantations* (Stuttgart: Franz Steiner Verlag, 1985), 144, tablet Ni 630, lines 130′–159′. For corrections, see most recently M. J. Geller, *Healing Magic and Evil Demons. Canonical Udug-hul Incantations* (Berlin: De Gruyter, 2016), 543–44.

[22] For an analysis of the problem of defining "demons" in Mesopotamia, see L. Verderame, "Demons in Ancient Mesopotamia: Problems and New Perspectives" (Forthcoming).

Sumerian	Akkadian gloss	English translation
ka-kešda gú-murgu		knot of the backbone
íb		hips, waist (Geller: "thorax")
háš		hips, thighs
úr-kun		pelvis
gìr		foot
á-šu-gìr		limbs (lit. arm-hand-foot)
kuš		skin, body
giš-ge-en-gi	(*gišginû*)	entire physique (lit. a wooden closure)

CT 17, 9–11: 1–18

1–2 Incantation. The asag / *asakku* has approached the man's **head** (sag-bi / *qaq-qa-di-šú*),
3–4 The namtar / *namtaru* has approached **his throat / breath** (ti-bi / *na-piš-ti-šú*),
5–6 The evil udug / *utukku* has approached **his neck** (gú-bi / *ki-*[*ša-di*]*-šú*),
7–8 The evil ala / *alû* has approached **his breast** (gaba-bi / *ir-ti-šú*),
9–10 The evil ghost has approached **his waist** (íb-bi / *qab-li-šú*),
11–12 The evil galla / *gallû* has approached **his hand** (šu-bi / *qa-ti-šú*),
13–14 The evil god has approached **his feet** (gìr-bi / *še-pi-šú*),
15–16 The seven have seized him together,
17–18 **His body** (bar-bi[23] / *zu-mur-šú*) has been … like fire.

A more aggressive response against sickness may be found in tablet BAM 212: 9–35,[24] where the predictable set of body terminology *a capite ad calcem* is used in the context of a healing ritual, which aims to transfer disease from different parts of the patient's body to corresponding parts of a clay figurine functioning as a substitute.[25] The notion of relegating disease from the human body to an artificial representation or image is clearly manifested by the use of possessive pronouns *-ī /-ya* ("my") and *-ka* ("your"), which sets up the directionality of transfer from the patient whose infirmity needs to be expelled towards the figurine that receives it.[26] Again, the thoroughness with which body parts are listed gives concrete form and physical integrity to the human body in its wholeness, affirming that the figurine is in each and every point a replica of the patient and is therefore suited as a carrier of the patient's malady.[27]

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[23] bar = *mišlu* "half, middle"; *qilpu* "rind, skin." Notice that the goddess's body (bar) in *Inanna's Descent* is also mentioned in final position (see Fig. 10.3) as the victim's is here.

[24] See also the duplicates BAM 213: 2′–rev. 29′, and *LKU* 37.

[25] Apparently, the ritual aims at counteracting the actions of demons. For the topic of substitution in Assyrian rituals, see L. Verderame, "Means of Substitution: The Use of Figurines,

> **BAM 212: 9–35**[28]
> The disease of my **forehead** (SAG.KI) to your forehead, the same;
> The disease of my **top/skull** (UGU) to your top/skull, the same;
> The disease of my **face/countenance** (*pāni*) to your countenance, the same;
> The disease of my **eyes** (IGI^{II}) to your eyes, the same;
> The disease of my **nose** (*appi*) to your nose, the same;
> The disease of my **ears** (GEŠTUG^{II}) to your ears, the same;
> The disease of my **lip(s)** (NUNDUN) to your lip(s), the same;
> The disease of my **tongue** (EME) to your tongue, the same;
> The disease of my **mouth** (KA) to your mouth, the same;
> The disease of my **neck** (GÚ) to your neck, the same;

Animals, and Human Beings as Substitutes in Assyrian Rituals," in *Approaching Rituals in Ancient Cultures. Questioni di rito: Rituali come fonte di conoscenza delle religione e delle concezioni del mondo nelle culture antiche. Proceedings of the Conference, November 28–30, 2011, Roma*, ed. C. Ambos and L. Verderame (Rome: Fabrizio Serra, 2013), 301–23.

[26] Thus GIG ⸢SAG⸣.KI.MU *ana* S[AG].KI-*ka* MIN (line 9), GIG UGU.MU *ana* UGU-*ka* MIN (line 10), and passim in the text.

[27] Cf. W. Schramm, *Ein Compendium sumerisch-akkadischer Beschwörungen* (Göttingen: Universitätsverlag, 2008), 34–39; quoted and analysed in Verderame, "Means of Substitution," 313–15. In this ritual, aimed at counteracting the *asakku*, the body parts of a cut-up piglet are placed on the corresponding sections of the patient's body. Verderame proposes that, in this specific ritual, the epigastrium "is conceived as the symbolical centre of the body" (p. 315).

[28] The translation here is my own. See also M.J. Geller, "Look to the Stars: Babylonian Medicine, Magic, Astrology and Melothesia," Max-Planck-Institut für Wissenschaftsgeschichte Preprints 401 (2010), 8–13. Note that two terms pertain to the semantic field of female body parts: UBUR / *tulû* (although it sometimes applies to men's bodies), and PEŠ$_4$ / *biṣṣūru* "vulva, vagina." The text could have originally been intended to treat a female patient.

The disease of my **arm** (Á) to your arm, the same;
The disease of my **hand/wrist** (KIŠIB) to your hand/wrist, the same;
The disease of my **(finger) nail** (UMBIN) to your (finger) nail, the same;
The disease of my **right** (15) to your right, the same;
The disease of my **left** (2,30) to your left, the same;
The disease of my **breast** (UBUR) to your breast, the same;
The disease of my **rib** (TI) to your rib, the same;
The disease of my **insides** (ŠÀ) to your insides, the same;
The disease of my **navel** (LI.DUR) to your navel, the same;
The disease of my **backbone** (GÚ.MURGU) to your backbone, the same;
The disease of my **waist/middle** (MURUB$_4$) to your waist/middle, the same;
The disease of my **tail** (GIŠ.KUN) to your tail, the same;
The disease of my **hip** (TUGUL) to your hip, the same;
The disease of my **vulva/vagina** (PEŠ$_4$) to your vulva/vagina, the same;
The disease of my **thigh** (ÚR) to your thigh, the same;
The disease of my **shin** (*kìn-ṣi*) to your shin, the same;
The disease of my **feet** (GÌR$^{\mathrm{II}}$) to your feet, the same.

The arrangement of incantation narratives and ritual performances in head-to-toe order is a phenomenon attested in many traditions and widely studied in other disciplines. Addressing the contexts of Indo-Iranian witchcraft,[29] healing and purification rituals,[30] and cosmological accounts of creation from the dismembered body of primordial beings, for instance, Sadovski maintains that "*body part enumerations* serve to achieve (ritual) completion and perfection."[31] Regardless of culture, lists in ritual contexts serve as "a sort of linguistic central-locking device, designed to block all exit-routes by naming every possibility."[32] These observations on the functions of lists in ritual contexts certainly apply to anatomical descriptions of the kinds we discussed earlier, particularly with respect to their aims of conveying a sense of completeness and efficacy.[33] Lists of body parts in therapeutic and ritual contexts,[34] in fact, rely on the limitedness and physicality of the body: Because the body is definite and has boundaries, comprehensiveness becomes an achievable end. Such corporeal boundaries are especially marked by explicit mention of the head and the feet, i.e., the upper and lower limits that enclose the whole body.

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[29] V. Sadovski notes how the piercing of different body parts of an effigy in black magic usually follows a head-to-toe order with parallel procedures reported in ancient Greek and Roman contexts, in "Ritual Spells and Practical Magic for Benediction and Malediction: From India to Greece, Rome, and Beyond (Speech and Performance in Veda and Avesta, I.)," in *Iranistische und indogermanistische Beiträge in Memoriam Jochem Schindler (1944–1994)*, ed. V. Sadovski and D. Stifter (Wien: Verlag der österreichen Akademie der Wissenschaften, 2013), 339–41 §§ 6.3.1.–6.3.3.

[30] V. Sadovski, "Structure and Contents of Lists and Catalogues in Indo-Iranian Traditions of Oral Poetry (Speech and Performance in Veda and Avesta, II)," in *Proceedings of the 14th World Sanskrit Conference in Kyoto. Vedic Section*, ed. J. Klein and K. Yoshida (Bremen: Hempen, 2012), 153–92; Sadovski, "Ritual Spells and Practical Magic for Benediction and Malediction," 339, n. 7; quoting Avesta Vd. 8, 40–72.

[31] Sadovski, "Structure and Contents of Lists and Catalogues," 174.

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[32] *Ibid.*, 340. This may have been the main goal of other lists in cuneiform ritual contexts, as in the so-called *lipšur* litanies. For the edition, see E. Reiner, "Lipšur Litanies," *Journal of Near Eastern Studies* 15/3 (1956): 129–49. Cf. the interpretation advanced by Gonzalo Rubio, who argues that the use of enumerations and the inclusion of a limited number of lexical items in literary compositions served to evoke a sense of infiniteness. He sees these lists "as finite listings that attempted to capture a frequently subjective segment of reality, were likely to convey the same sense of infinite collection to which Borges referred in his essays on Walt Whitman." See G. Rubio, "Early Sumerian Literature: Enumerating the Whole," in *De la tablilla a la inteligencia artificial: Homenaje al prof. Jesús-Luis Cunchillos en su 65 aniversario*, ed. A. González Blanco, J. P. Vita Barra and J. Á. Zamora López (Zaragoza: Instituto de Estudios Islámicos y del Oriente Próximo, 2003), 206.

[33] On the function of lists in incantations and ritual contexts, see R. Gordon, "What's in a List? Listing in Greek and Graeco-Roman Malign Magical Works," in *The World of Ancient Magic*, ed. D. R. Jordan (Bergen: Norwegian Institute at Athens, 1999), 239–77.

[34] For more examples of therapeutic interventions applied from head to toe, see B. Böck, "When You Perform the Ritual of 'Rubbing' ": On Medicine and Magic in Ancient Mesopotamia," *Journal of Near Eastern Studies* 62/1 (2003): 6–7: The *muššu'u* ritual tablet, lines 4–29, gathers together a number of incantations and different types of *materia medica* (salves, stones, plants, etc.) to be applied on different parts of the patient's body (head, forehead, neck, right and left hands, navel, hips, waist to knee, knee to foot, head to foot, etc.). The recitations focus on the body part where the specific *materia medica* is administered. See also *ibid.*, 8–9 for a discussion of the head-to-toe order followed in this particular text. Cuneiform texts containing similar procedures regarding the application of stone sequences in different parts of the body have been edited by A. Schuster-Brandis, *Steine als Schutz- und Heilmittel. Untersuchung zu ihrer Verwendung in der Beschwörungskunst Mesopotamiens im 1. Jt. Vor Chr* (Münster: Ugarit-Verlag, 2008). For references to the patient fumigated from head to foot, see M. J. Geller, *Evil Demons: Canonical 'Utukkū Lemnūtu' Incantations* (Helsinki: Neo-Assyrian Text Corpus Project, 2007), 250 and Geller, *Healing Magic and Evil Demons*, 493 (Utukkū lemnūtu XIII–XV, 245). See also T. Abusch and D. Schwemer, *Corpus of Mesopotamian Anti-Witchcraft Rituals* (Leiden: Brill, 2011), 93, text 2.3, lines 94–95, for the rubbing of the patient from head to foot to keep witchcraft away, and passim in cuneiform therapeutic texts.

Meanwhile, other anatomical terms between head and feet are cited in ritual procedures to complete and 'flesh out' more vividly the body in its multi-faceted complexity. The singling out of particular body features, moreover, may be intended to emphasize their deeper meanings: Breath, for example, signifies the notion of life; arms and hands allude to the capacity of acting, while legs and feet evoke movement.[35]

4 Signs of the Body: Bringing Order to Divination and Anatomical Observation

A number of cuneiform text series and compositions devoted to the observation and interpretation of signs take the body as their main object of scrutiny. The SA.GIG or Diagnostic-Prognostic Series is probably the composition that best represents the 'old' organizing principles of Ugu-mu, in its especially rich repertoire of terminology on the human body.[36] Particularly in SA.GIG tablets 3–18, the head-to-toe order serves as an organizing principle for individual text entries (Table 2.5). In this way, the series maps out a picture of the diseased body, about which it pronounces verdicts of recovery or death.

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[35] See, for instance, the description of the effects witchcraft has on its victims in G. Meier, *Die assyrische Beschwörungssammlung Maqlû* (Berlin: Weidner, 1937), 14 II 31–35, and most recently T. Abusch, *The Magical Ceremony Maqlû* (Leiden: Brill, 2015), 294 II 32–36.

[36] Labat, *Traité akkadien de diagnostics et pronostics médicaux*; Heeßel, *Babylonisch-assyrische Diagnostik*; N. P. Heeßel, "Diagnostik in Babylonien und Assyrien," *Medizinhistorisches Journal* 36 (2001): 247–66; N. P. Heeßel, "Diagnosis, Divination and Disease: Towards an Understanding of the Rationale Behind the Babylonian Diagnostic Handbook," in *Magic and Rationality in Ancient near Eastern and Graeco-Roman Medicine*, ed. H. F. Horstmanshoff and M. Stol (Leiden: Brill, 2004), 97–116; J. Scurlock, *Sourcebook for Ancient Mesopotamian Medicine* (Atlanta: SBL Press, 2014), 13–271. Unlike in Ugu-mu, scribes copying diagnostic and prognostic texts employed horizontal lines to subdivide specific anatomical sections.

TABLE 2.5 *Body parts arranged from head to toe in the series SA.GIG, tablets 3–18*

Tablet	Body term	English translation
3	UGU (*muḫḫu*)	skull
	MURUB$_{(4)}$ UGU (*qabal muḫḫi*)	middle of the skull
	ši-bit SAG.DU (*qaqqadi*)	seam/suture of the head
	ú-ru-uḫ SAG.DU	hair of the head
	kal-li SAG.DU	bowl of the head
	SAG.DU	head
	SIKI (?) SAG.DU	hair of the head
4	SAG.KI (*nakkaptu*)	temple / forehead
	SAG.KI^{II} (*nakkaptā*(*n*), + *ša imitti*, *ša šumēli*)	the two temples (+ right / left temple)
	SA SAG.KI$^{(II)}$ (*šer'ān nakkapti* / *nakkaptī*)	cord (tendon, muscle, vein) of the temple(s)
	ú-ru-uḫ SAG.KI	hair of the temple / forehead
	SAG.KI (*pūtu*)	forehead
5	IGI (*īnu*, + *imittu*, *šumēli*)	eye (+ right / left eye)
	IGI^{II} (*īnā*(*n*))	the two eyes
	BABBAR IGI^{II} (*pūṣ īnī*)	white of the eye
	GI$_6$ IGI^{II} (*ṣalam īnī*)	black of the eye
	SA IGI^{II} (*šer'ān īnī*)	cord (muscle, vein) of the eye
	SA *kak-kul-ti* (*ša* 15 (*imitti*) / 2,30 (*šumēli*))	cord (muscle, vein) of the eyeball (+ of the right / left eyeball)
	PA (*kappu*), *a-tar* IGI^{II} 15 (*imitti*) / 2,30 (*šumēli*)	eyelid, enlargement (?) / excess (?) of the two eyes (+ right / left eye)
6	KIR$_4$ (*appu*)	nose
	SAG KIR$_4$ (*rēš appu*)	tip of the nose
	IM KIR$_4$ (*šār appu*)	wind of the nose
	naḫīru / *naḫīrān*	nostril / the two nostrils
	NUNDUN, NUNDUN.MEŠ (*šaptu*, *šapātu*)	lip(s)
	ZÚ, ZÚ.MEŠ (*šinnu*, *šinnātu*)	tooth, teeth
7	EME (*lišānu*)	tongue
	KA (*pû*)	mouth
	līq KA (*pî*)	palate
	DUG$_4$ (*dabābu*)	speech
	rigim GIG (*marṣi*)	cry / voice of the ill (person)

Tablet	Body term	English translation
8	GEŠTUG (*uznu*), (15 / *imittu*, 2,30 / *šumēlu*), GEŠTUG^{II} (*uznān*)	ear (+ right / left ear), the two ears
9	IGI.MEŠ (*pānu*)	face, countenance
	SAG IGI.MEŠ (*rēš pāni*)[a]	top of the face / countenance
10	GÚ (*kišādu*)	neck
	KIŠIB GÚ (*kunuk kišādi*)	vertebra (lit. cylinder seal of the neck)
	SA GÚ (*labiānu*)[b]	neck tendons
	GÚ.MUR (*urʾudu*)	throat
	ZI (*napištu*)	breath
	ZI ḪA.ZA (*mukīl napišti*)[c]	support (?) of the breath
	g/kirru	region of the throat and clavicles
	Á (*aḫu*, *idu*), Á^{II} (*aḫā*(*n*), *idā*(*n*))	arm / side, the two arms / sides
	KÙŠ.MEŠ (*ammātu*)	forearms / cubits
11	*rittu* (*ša* 15 / *imitti*, 2,30 / *šumēlu*)	hand / fist (right / left)
	ŠU (*qātu*), ŠU^{II} (*qātā*(*n*))	hand, the two hands
	SA ŠU^{II} (*šerʾān qātī*/*ē*)	cord (tendon, muscle) of the two hands
	U.MEŠ ŠU^{II} (*ubānāt qātī*/*ē*)	fingers of the two hands
	appat U.MEŠ (*ubānāti*)[d]	tip of the fingers
	ŠE U.MEŠ (*kittabri ubānāti*)[e]	side of the fingers (Wee: "distal phalanges")[f]
	karši U.MEŠ (*ubānāti*)	belly, lower side of the fingers (Wee: "proximal phalanges ?")
12	GABA (*irtu*)	chest
	SA GABA (*šerʾān irti*)	cord (tendon, muscle, vein) of the chest
	UBUR (*tulû*) (15 / *imittu*, 2,30 / *šumēlu*), UBUR.MEŠ (*tulû*)	breast(s) (right / left breast)
	ELLAG$_2$ (*kalītu*), ELLAG$_2$.MEŠ (*kalātu*; *kalīt imitti* / *šumēli*)	kidney(s) (right / left kidney)
	šašallu (*ša imitti* / *šumēli*)	back muscle / tendon (right / left)
	GÚ.MURGU$_2$ (GÚ.LUM, *eṣemṣēru*)	spine
	MURUB$_4$.ME (*qablū*)	waist, flanks, hips
	ÚR.KUN (*rapaštu*)[g]	lower back
	kurru (?)	pelvis (?)
13	SAG ŠÀ (*rēš libbi*)	epigastrium
	ŠÀ (*libbu*)	belly, insides

TABLE 2.5 *Body parts arranged from head to toe in the series SA.GIG, tablets 3–18* (cont.)

Tablet	Body term	English translation
	ŠÀ.MEŠ (*irrū*?)	intestines
	imšu	abdomen, lower belly
	irrū	intestine
14	*gilšu*, TUGUL.MEŠ (*gilšū*), *giliš imitti* / *šumēli*	hip(s) (+ right / left hip), groin
	GU.DU (*qinnatu*), GU.DU.MEŠ, GU.DU 15 / GU.DU 2,30	buttock(s) (+left / right buttock)
	DÚR (*šuburru*)	anus
	mušarru	penis
	KÀŠ.MEŠ (*šinātu*)	urine
	ŠIR^{II} (*iškā*(*n*))	the two testicles
	ÚR.MEŠ (*sūnū*), ÚR 15 / 2,30	loin, lap (+ right / left loin)
	ribītu	section of the top of the leg
	birku	knee
	pūqu	cleavage between the buttocks
	GÌR (*šēpu*), GÌR^{II} (*šēpā*(*n*)), GÌR *šá* 15 / 2,30	foot, the two feet, right / left foot
	U.MEŠ GÌR^{II} (*ubānāt šēpī*)	toes of the foot
	UMBIN U.MEŠ GÌR^{II} (*ṣupur ubānāt šēpī*)	nail of the toes of the foot
	karši U.MEŠ GÌR^{II} (*ubānāt šēpī*)	belly of the toes of the foot
	KIR$_4$ U.MEŠ GÌR^{II} (*appat ubānāt šēpī*)	tip of the toes of the foot
	GABA.MEŠ GÌR^{II} (*irāti šēpī*)	breasts / front part of the foot
	suḫar GÌR^{II}	uncertain part of the foot (Mirelman: “Achilles tendon”)[h]
	KUŠ *šá* KI.TA-*nu* GÌR^{II} (*mašku ša ša šaplānu šēpī*)	skin of the lower part of the feet
	SA GÌR^{II} (*šerʾān šēpī*)	cord (tendon, muscle, vein) of the two feet
18	SU (*zumru*)	body

a This is attested in two examples.

b This is attested in one example.

c The Akkadian reading of the sumerograms is unclear. Here, we follow Labat, *Traité akkadien de diagnostics et pronostics médicaux*, 84–87.

d Attested in just one reference.

e Attested in just one reference.

f Based on the interpretation of the commentary *STT* 403: 47 by J. Z. Wee (personal communication): ŠE U.MEŠ-*šú* TA GABA!(mu) *ap-pat* ŠU.SI.MEŠ-*šú* EN SAG *ṣu-ur-ri-šu*, "'His ŠE U.MEŠ' (*refer to*) *the parts* (i.e., distal phalanges) from the frontier of the tips of his fingers until the top of the middle (phalanges of) his (fingers)" In the head-to-foot sequence of Sagig tablet XI (see above), ŠE U.MEŠ is preceded by "tips of fingers" (*appat* U.MEŠ) and followed by "belly of fingers (= proximal phalanges ?)" (*karši* U.MEŠ).

g Labat (*Traité akkadien de diagnostics et pronostics médicaux*, 108–09) does not note the Akkadian equivalent and merely translates "périnée."

h S. Mirelman, "*Tuḫru* 'Achilles' Tendon'?" *Nouvelles Assyriologiques Brèves et Utilitaires* (2008): no. 65.

We should not overlook, however, the fact that other tablets of the Diagnostic Series are based on the observation of non-anatomical signs, and therefore do not adhere to patterns of arrangement based on sequences of body parts.[37] In other words, among diagnostic and prognostic texts, contents were also systematized according to non-corporeal or non-anatomical criteria. Tablets 1–2, for instance, deal with signs observed by the *āšipu*-healer when approaching the house of the patient. Tablets 15–16 formulate their diagnostic and prognostic verdicts, by taking into account how many days the patient has been ill, as well as other considerations pertaining to time. Tablet 17 analyses symptoms showed at different stages of pathological progression (i.e., at the beginning of disease, during illness, etc.), or at particular moments of the day, and so on.

Other cuneiform series emphasize a different set of anatomical elements. Tablet 31 of the series *Šumma ālu*, for instance, offers a variant narrative of the body.[38] This particular tablet deals with omens portended by a scorpion stinging various parts of the body, which are organised *a capite ad calcem* (Table 2.6). Within the larger head-to-toe scheme, the aspect of laterality (i.e., the distinction between right and left) becomes a key element in the formulation of the omen verdict and, consequentially, the arrangement of contents in the entire tablet. In short, the significance of bodily features along an axial plane (i.e., top—down) is additionally nuanced by considerations of features along the sagittal plane (i.e., right—left), effectively multiplying the possibilities of meanings associated with the ominous sign of a scorpion sting.[39]

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[37] For a full account of content ordering patterns in the SA.GIG series, see Heeßel, *Babylonisch-Assyrische Diagnostik*, 37–40.

[38] On the series *Šumma ālu*, see S. M. Moren, "The Omen Series Šumma Ālu. A Preliminary Investigation," Ph.D. diss., University of Pennsylvania, 1978; S. M. Freedman, *If a City Is Set on a Height, Volume 1. Tablets 1–21* (Philadelphia: Samuel Noah Kramer Fund, 1998); S. M. Freedman, *If a City Is Set on a Height, Volume 2. Tablets 22–40* (Philadelphia: Samuel Noah Kramer Fund, 2006); S. M. Maul, "Omina und Orakel. A. Mesopotamien," *Reallexikon der Assyriologie und Vorderasiatischen Archäologie* 10 (2003): 58–62, § 4.1.

TABLE 2.6 *Tablet 31 of the omen series* Šumma ālu*, describing the significance of a scorpion that stings* (izqut) *a person in different parts of the body* (*based on Freedman's edition of the text*).[a]

Body part	**English translation**
MURUB$_4$ SAG.DU	middle of the head
SAG.DU ZAG / GÙB	right / left (side) of the head
SAG.KI ZAG / GÙB	right / left (side) of the forehead (or right / left temple)
GEŠTUG ZAG / GÙB	right / left ear
TE ZAG / GÙB	right / left cheek
MAŠ.ŠÌL ZAG / GÙB	right / left shoulder blade
aḫi ZAG / GÙB	right / left arm
MUD *aḫi* ZAG / GÙB	left / right armpit
DIŠ.KÙŠ ZAG / GÙB	right / left forearm
ŠU ZAG / GÙB	right / left hand
ŠU.SI GAL *šá* ZAG	thumb (lit. big finger) of the left (hand)
ŠU.SI 2 *šá* ZAG	second finger of the right (hand)
ŠU.SI MURUB$_4$ *šá* ZAG	middle finger of the right (hand)
ŠU.SI 4 *šá* ZAG	fourth finger of the right (hand)

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[39] Laterality also plays an important role in the field of extispicy. A recitation to encourage a positive outcome from the extispicy inquiry quotes a long list of sheep anatomical terms, including specific terminology of the liver and the internal organs. See I. Starr, *The Rituals of the Diviner* (Malibu: Undena Publications, 1983), 31–36 (translation in pp. 38–43, lines 20–131). In this case, body terms are organised from head to tail, addressing first the dorsal and then the ventral side. The formulaic language employed describes how each one of these anatomical sections should appear so that the omen may be considered positive, and it is here that the significance of the right–left division is made manifest. For the significance of the right–left binary in cuneiform extispicy, see J.-J. Glassner, "Le corps écrit. La victime dans le sacrifice divinatoire en Mésopotamie," in *Du corps au texte. Approches comparatives*, ed. B. Baptandier and G. Charuty (Nanterre: Publications de la Société d'ethnologie, 2008), esp. 192, 197–99.

Body part	**English translation**
ŠU.SI TUR *šá* ZAG	small finger of the right (hand)
ŠU.SI GAL *šá* GÙB	thumb (lit. big finger) of the left (hand)
ŠU.SI 2 *šá* GÙB	second finger of the left (hand)
ŠU.SI MURUB$_4$ *šá* GÙB	middle finger of the left (hand)
ŠU.SI 4 *šá* GÙB	fourth finger of the left (hand)
ŠU.SI TUR *šá* GÙB	small finger of the left (hand)
papān ŠÀ	part of the abdomen? umbilical region?
LI.DUR	navel
GAL$_4$.LA	vulva, vagina
GÌŠ	penis
ŠIR ZAG / GÙB	right / left testicle
ÚR ZAG / GÙB	right / left thigh
GU.DU ZAG / GÙB	right / left buttock
kimṣi ZAG / GÙB	right / left shin
kabarti ZAG / GÙB	right / left *kabartu* (foot section)
šapūl ZAG / GÙB	right / left groin
asīd ZAG / GÙB	right / left heel
KI.TA-*nu* GÌR ZAG / GÙB	right / left lower part of the foot
SIG$_4$: IGI GÌR ZAG / GÙB	arch (?) / front of right / left foot
ŠU.SI GAL *šá* GÌR ZAG / GÙB	big toe of the right / left foot
ŠU.SI 2 *šá* GÌR ZAG / GÙB	second toe of the right / left foot
ŠU.SI MURUB$_4$ *šá* GÌR ZAG / GÙB	middle toe of the right / left foot
ŠU.SI 4 *šá* GÌR ZAG / GÙB	fourth toe of the right / left foot
ŠU.SI TUR *šá* GÌR ZAG / GÙB	small toe of the right / left foot
SIG$_7$ IGI *šá* 15 / 150	eyebrow of the right / left eye
kappi IGI *šá* 15 / 150	eyelid of the right / left eye
usukki šá 15 / 150	right / left (upper) cheek
TE *šá* 15 / 150	right / left cheek
suḫāt šá ZAG / GÙB	right / left armpit
GABA *šá* ZAG / GÙB	right / left (part of the) chest
TI (?) *šá* ZAG / GÙB	right / left rib(s)

a Freedman, *If a City Is Set on a Height, Volume 2. Tablets 22–40*, 148–63.

Other divinatory and observational series employ anatomical themes in yet different ways. The *Izbu* series, which deals with omens based on the observation of malformed foetuses, makes mention only of physical features that bear omen significance.[40] For example, tablet 2 explores cases whereby a woman gives birth to a foetus with the head (SAG.DU) of various animals (ll. 1–8), as well as peculiarities of form in the foetus' arm and hand (Á, ŠU; entries 9–15?), in its head and in its body. When different parts of the body are quoted within a single entry, they do not necessarily follow a precise head-to-toe order. Entry 24 in *Izbu* tablet 2, for instance, enumerates "two heads, two spines, two mouths, two hands, four feet" (2 SAG.DU.MEŠ, 2 GÚ.MURGU.MEŠ, 2 KA, 4 ŠU.MEŠ, 4 GÌR.MEŠ), while Entry 30 of the same tablet mentions "two heads, two mouths, two tongues, four eyes, four spines, four hands, four feet" (2 SAG.DU.MEŠ 2 KA 2 EME.MEŠ 4 IGI.MEŠ 4 GÚ.MURGU.MEŠ 4 ŠU.MEŠ 4 GÌR.MEŠ).[41]

Cuneiform tablets on physiognomics focus on specific, often very detailed physical traits, emphasizing aspects such as the appearance, colour, and position of hair locks, the form of the head and its resemblances to animal heads, and so on. The surviving tablets of the Physiognomic Series (*Alamdimmû*) concentrate minutely on the head (skull, hair, eyes, face, teeth, etc.) and less so on the neck, belly, belly button, genitals, and other body parts.[42] Like SA.GIG, this series displays a wealth of bodily terminology organised from head to toe, while also taking into account complicating factors such as laterality, subdivisions of particular body parts into top–middle–bottom sections, and variations on colour, texture, and size, among other features.

5 Conclusion

The anatomical descriptions surveyed in this chapter are consistently grounded on a meronymic conception of the body, with partonomy adapted to a variety of roles. Sumero-Akkadian lists of body parts that follow a basic head-to-toe pattern were flexible enough to respond to a multiplicity of needs and aims. The *a capite ad calcem* principle expressed ideas of finiteness, completeness and wholeness (in healing rituals and myths like *Inanna's Descent to the Netherworld*), notions of identity and embodiment (in *Göttertypentext* and characterizations of hybrid creatures and personified destructive forces), as well as the sense of order and progression (in Ugu-mu, SA.GIG, and other texts concerned with interrelationships among different bodily regions and parts). Very often, these different dimensions intermingled, complementing each other. Corollary to their role in incantation and ritual procedures involving substitution and transference, moreover, head-to-toe descriptions extended beyond written forms and were manifest in performance. Indeed, uses of such descriptions in scribal education (e.g., in the case of Ugu-mu) and in the communication of divinatory and observation-based techniques inevitably recalled actual human bodies, which must have been readily available as models.

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[40] Leichty, *The Omen Series Šumma Izbu.*

[41] See, however, tablet 3 for a sort of *a capite ad calcem* pattern: GEŠTUG "ear" (entries 1–23), KIR$_4$ "nose" (entries 24–30), *nahīru* "nostril" (entries 31–32), *laḫû* "jaw" (entries 33–34), ZAG.GA "chin" (entries 35–36), KA / *pû* "mouth" (entries 37–39), NUNDUN "lip" (entries 40–42), ZAG "side" (entries 43–45), Á "arm" (entry 46), ŠU "hand" (entries 47–50), ŠU.SI.MEŠ "fingers" (entries 51–55), ŠU.SI.MEŠ GÌR^{II} "toes of the feet" (entries 56–63), ŠÀ "insides, belly" (entries 64–65), *irrū* "intestines" (entries 66–67), GÌŠ "penis," ŠIR "testicle," and GAL$_4$.LA "vulva, vagina" (entries 68–74), GU.DU "buttocks" (entries 75–76), ÚR "leg, loin, hip" (entries 77–78), *šapūlu* "thigh" (entry 79), GÌR "foot" (entries 80–98), *asīdu* "heel" (entries 99–100), *malālu* (entry 101, term of uncertain meaning).

[42] For a list of the anatomical and body terminology present in physiognomic divination, see Böck, *Die babylonisch-assyrische Morphoskopie*, 47–54.

We may ask why the human body was perceived as such a powerful tool for framing and describing one's interaction with the world, the divine, and the extra-human. Human individuals are embodied entities, that is, subjects who live, perceive, and interact with the world from and through their bodies. As Raymond W. Gibbs, Paula L. C. Lima and Edson Francozo point out, "studies in cognitive linguistics have shown that much of ordinary human cognition is not represented in terms of propositional and sentential information but is grounded in and structured by various patterns of our perceptual interactions, bodily actions, and manipulations of objects."[43] The orientation of the human body, which is typically envisioned in the upright position and which takes its reference from three axes (head–foot, right–left, front–back), therefore, profoundly influences the ways that individuals and communities relate and interact with the environment and with one another. As suggested by the ancient examples in this chapter and supported by modern evidence, man does seem to be the measure of all things. Consciously or unconsciously, the personal and daily experience of actually *being* a physical entity makes the body a natural base from which one perceives and thinks about the world and its components, and creates a certain immediacy in the way one responds to analogies based on the human body.

All things considered, the Mesopotamian preference for head-to-toe narratives in constructing complex metaphors seems to have been based on perceptual grounds, unlike traditions that conceptualize the (human) body as an ideal prototype based on theological views of divine purpose in creation. The cuneiform written sources reveal that the body in ancient Mesopotamia was a rich, complex signifier and conveyer of meaning. Head-to-toe anatomical descriptions shaped the ways in which the ancients thought about the individual, reflected on power, explained creation, and expressed the intangible in concrete form. Moreover, the body itself was rich with a plethora of meanings, values and associations, including those of feeling, representation, political discourse, metaphor and sexuality. The body in ancient Mesopotamia, therefore, was not one but many, and a subject worth exploring.

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[43] R. W. Gibbs, P. L. C. Lima and E. Francozo, "Metaphor is Grounded in Embodied Experience," *Journal of Pragmatics* 36 (2004): 1193, with previous bibliography.

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CHAPTER 3

The Stuff of Causation: Etiological Metaphor and Pathogenic Channeling in Babylonian Medicine[1]

J. Cale Johnson

Models of causation play a central role in defining specific types of scientific thought, and this was also certainly the case with Babylonian medicine (Akk. *asûtu*), yet traditional expressions of causation, rooted in juridical practice, are never found in the medical corpus. This chapter argues that Babylonian physicians represented disease causation or etiology in a new way, largely through conceptual metaphors embedded in incantations. These metaphors drew, for the most part, on landscape and atmospheric conditions—rather than supernatural causal agents—to represent unseen processes within the human body. The linear transformation of one type of disease into another, for example, was modeled on the normative movement of food and drink through the gastrointestinal system, and this reflected the dominant role of a fluvial metaphor, in which the human alimentary canal was conceptualized as a river or waterway.

1 Introduction

One of the hallmarks of cuneiform medical texts, often seen as evidence of their disinterest in theoretical matters, is the near absence of descriptions of causation. The famous 'hands' of ghosts, demons and deities, so well known from *The Diagnostic Handbook*, are only rarely found in the therapeutic materials that are the epitome of Babylonian medicine (Akk. *asûtu*). Even where

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they do occur, they were probably frozen technical terms, no longer appealing to etiological models of the diagnostic tradition (*āšipūtu*) or the exorcists who made use of it. This chapter argues, however, that over time Babylonian medicine (*asûtu*) did develop its own models of disease etiology, models that were presumably inspired by the diagnostician's pursuit of supernatural causal agents, but ultimately took on a rather different form. The two essential components of this specifically medical (or therapeutic) model of disease causation and transformation were (i) the use of 'medical incantations' and their Old Babylonian (ca. 20th to 16th centuries BCE) precursors to model extrasomatic pathogenesis, such as in cases of so-called 'chain incantations,' and (ii) the tracing of the transformation of one disease into another along physiological pathways within the body, which constitutes the principle of organization for the medical compendia.

The largely anatomical structure of the medical compendium was obviously the primary device for organizing knowledge within Babylonian medicine (*asûtu*) as a discipline, so it is little wonder that it also served as the principal model for conceptualizing the transformation of one disease into another. The role of incantations in Babylonian medicine is somewhat more surprising, however. In the handful of medical compendia dating to the Old Babylonian period (ca. 20th to 16th centuries BCE), which will soon to be supplemented by a newly discovered Old Babylonian compendium to be published by Irving Finkel, incantations play little or no role. It is therefore increasingly clear that the clusters of incantations that we find in the first millennium medical compendia from Nineveh were later interpolations. As I suggest later, these clusters of interpolated recitations (which contain our best examples of metaphorical language in specifically medical compendia) likely served as the primary medium in which new models of extrasomatic causation were postulated and aligned with the recipe-driven methods of the physicians.

This chapter is organized into four sections, beginning with a bit of theoretical prophylaxis, in which the sometimes exuberant expansion of metaphor as an interpretive key is criticized and, hopefully, reattached to its linguistic and practical foundations. The second section takes up the role of incantations as a primary medium in which intermediate causal relations were postulated and theorized, while the third section looks at a specific example: the disease known as U$_4$.DA SÁ.SÁ. The fourth examines the position of U$_4$.DA SÁ.SÁ within the so-called Assur Medical Catalogue and what it tells us about how Mesopotamian physicians classified such a disease. As I will demonstrate, the 'linear' model of causation postulated for U$_4$.DA SÁ.SÁ and other forms of *ṣētu*-fever presents a clear contrast with the 'non-linear' model that was used for various forms of epilepsy.

2 Defusing the Embodiment Business

Human experience is difficult to commodify, not easy to parcel out and count up precisely because, as researchers in many different fields have pointed out, it is an embodied phenomenon. I wish to suggest, however, that much of this discussion fundamentally conflates a well-studied linguistic phenomenon (i.e., the use of constructions involving body-part nouns to describe internal states) with folk theories that seek to explain this odd feature of natural human languages (e.g., the heart or liver seen as the seat of emotions). Syntacticians and language typologists have made great strides in systematizing and typologizing linguistic expressions that describe internal states, and this section will briefly survey some of these grammatical devices. Only with this etic analytical schema firmly in mind will we turn to Mesopotamian folk theories that sought to explain the same links between linguistic and experiential phenomena.

The role of 'heart' or 'innards' as a center of experience and awareness seems almost universal. Internal states are interior, after all, and must be located somewhere within the body. In one of the foundational texts of 'conceptual metaphor theory,' namely, Lakoff and Johnson's *Metaphors We Live By*, examples pertaining to such inner states are presented as follows:

> PHYSICAL AND EMOTIONAL STATES ARE ENTITIES WITHIN A PERSON
> He has a pain **in** his shoulder. Don't **give** me the flu. My cold has **gone from my head to my chest**. His pains **went away**. His depression **returned**. Hot tea and honey will **get rid of** your cough. He could barely **contain** his joy. The smile **left** his face. **Wipe** that sneer **off** your face! His fears **keep coming back**. I've got to **shake off** this depression—it keeps **hanging on**. If you've got a cold, drinking lots of tea will **flush it out of** the your system. There isn't a trace of cowardice **in** him. He hasn't got an honest bone **in his body**.
> Lakoff and Johnson 1980: 50

Lakoff and Johnson do not offer much comment on these specific examples, though, as a whole, they constitute a wonderful set of idioms for illness and the description of other internal states in English.[2] Instead, in their book, Lakoff and Johnson prefer to focus on prototypical examples, such as the metaphor ARGUMENT IS WAR. This particular metaphor, in fact, aptly describes the overarching purpose and rhetorical structure of the book as a whole: With academic writing of the usual sort defined as a ONE-PARTY RATIONAL ARGUMENT

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[2] The third example ("My cold has **gone from my head to my chest**") will be particularly relevant later in this chapter.

(Chapter 16), one cannot help but wonder if the entire enterprise and, in particular, the ARGUMENT IS WAR metaphor should not be regarded as some kind of ethnography or even a meta-commentary on present-day academic disputation.[3]

In spite of our natural and unfortunate predilection to confer etic status on *Metaphors We Live By*, it is very much an emic folk theory of late twentieth century academic discourse. This is all the more evident in the subsequent development of conceptual metaphor theory, where the largely ahistorical and seemingly universal categories postulated by Lakoff and Johnson have been gradually accommodated to specific cultural constraints and historical semantic analyses. One key example in these discussions is ANGER IS HEAT (more recently reframed as the ANGER IS A HOT FLUID IN A CONTAINER metaphor), which has been investigated in a number of different linguistic and historical domains over the last thirty years.[4] The upshot of these lengthy discussions is that conceptual metaphors are indeed heavily constrained by the linguistic and intellectual history of their use. In their advocacy for diachronic semantics, Geeraerts and Gevaert among others have argued that "metaphors are not necessarily universal, and variation in metaphorical conceptualization may be sensitive to cultural influences," and they further suggest that "an exclusive focus on metaphor conceptualizations (*a fortiori*, on embodied metaphorical conceptualizations) is likely to distort the picture of actual cultural models at work."[5]

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[3] For a historiographical rather than rhetorical commentary on the period, in particular, the way in which many of the foundational concepts in G. Lakoff and M. Johnson, *Metaphors We Live By* (Chicago: University of Chicago Press, 1980) return to the same set of problems that George Lakoff had dealt with some years earlier in the context of generative semantics, see F. Newmeyer, *Linguistic Theory in America: The First Quarter Century of Transformational Generative Grammar* (New York: Academic Press, 1980); R. A. Harris, *The Linguistics Wars* (New York: Oxford University Press, 1993); B. H. Partee, "A Brief History of the Syntax-Semantics Interface in Western Formal Linguistics," *Semantics-Syntax Interface* 1/1 (2014): 1–21.

[4] G. Lakoff and Z. Kövecses, "The Cognitive Model of Anger Inherent in American English," in *Cultural Models in Language and Thought*, ed. D. Holland and N. Quinn (Cambridge: Cambridge University Press, 1987), 195–221; D. Geeraerts and S. Grondelaers, "Looking Back at Anger: Cultural Traditions and Metaphorical Patterns," in *Language and the Cognitive Construal of the World*, ed. J. R. Taylor and R. E. MacLaury (Berlin: de Gruyter, 1995), 153–79; Z. Kövecses, "Anger: Its Language, Conceptualization, and Physiology in Light of Cross-Cultural Evidence," in *Language and the Cognitive Construal of the World*, ed. J. R. Taylor and R. E. MacLaury (Berlin: de Gruyter, 1995), 181–96; D. Geeraerts and C. Gevaert, "Hearts and (Angry) Minds in Old English," in *Culture, Body, and Language: Conceptualizations of Internal Body Organs Across Cultures and Languages*, ed. F. Sharifian, R. Dirven, N. Yu, and S. Niemeier (Berlin: de Gruyter, 2008), 319–47; D. Geeraerts, C. Gevaert, and D. Speelman, "How *Anger* Rose: Hypothesis Testing in Diachronic Semantics," in *Current Methods in Historical Semantics*, ed. K. Allan and J. A. Robinson (Berlin: de Gruyter, 2011), 109–32; J. J. Mischler, *Metaphor across Time and Conceptual Space* (Amsterdam: Benjamins, 2013).

To be sure, as shown by many of the papers assembled in *Culture, Body, and Language: Conceptualizations of Internal Body Organs Across Culture and Languages* (Sharifian et al 2008), internal states are frequently encoded with reference to the interior body in a wide variety of languages, so it is easy to acquiesce to Lakoff and Johnson's proposed metaphor PHYSICAL AND EMOTIONAL STATES ARE ENTITIES WITHIN A PERSON (hereafter abbreviated as STATES ARE ENTITIES WITHIN) for internal states and quasi-internal ones (e.g., facial expressions). Such a generalization, however, may overlook the fact that, in many cases, literal descriptions of internal states are more important than metaphorical ones, and the physiological (hence embodied) character of these metaphors is often presupposed rather than demonstrated from contextual evidence.[6]

One of the likely points of origin for various types of STATES ARE ENTITIES WITHIN 'metaphors' in different languages is a well-known class of predicates in natural human language that are often described as psychological verbs or, more briefly, psych-verbs.[7] In Belletti and Rizzi's classic 1988 paper on these constructions, they identify three general syntactic types of psych-verb,[8] outlined below on the basis of Landau's (2009) more recent discussion of these categories.

The three classes of psych-verb (Belletti and Rizzi 1988; Landau 2009: 5)
Class I: Nominative experiencer, accusative theme
John loves Mary

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[5] Both quotes are from Geeraerts and Gevaert, "Hearts and (Angry) Minds in Old English," 340 and 343, although it should be emphasized that the first is intended as common ground, while the second is meant as a contrast to the universalism of THE ANGRY PERSON IS A PRESSURIZED CONTAINER postulated by Z. Kövecses, *Metaphor in Culture: Universality and Variation* (Cambridge: Cambridge University Press, 2005).

[6] This is one of the main contentions of C. Gevaert, "The History of Anger: The Lexical Field of Anger from Old to Early Modern English," Ph.D. diss., Katholieke Universiteit Leuven, 2007. The methodological complexities that arise from data in Old and Middle English should certainly give pause to anyone looking at the use of metaphor in the far more distant and unfamiliar materials of second and first-millennium BCE Mesopotamia.

[7] The term 'metaphor' is in scare quotes to indicate that many of these 'metaphors' are in fact metonyms or even literal descriptions of internal states.

[8] A. Belletti and L. Rizzi, "Psych-verbs and θ-Theory," *Natural Language and Linguistic Theory* 6 (1988): 291–352.

Class II: Nominative theme, accusative experiencer
The show amused Bill
Class III: Nominative theme, dative experiencer
The idea appealed to Julie

Whereas the experiencer appears as the nominative subject of the verb (i.e., John) in Class I, the experiencer takes the role of the verb's accusative object (i.e., Bill) in Class II. In Class III, the experiencer (i.e., Julie) follows a preposition in English and would be represented in the dative or an oblique case in languages with case-markers. Accordingly, we can refer to the first type of verb as a 'subject-experiencer' verb, the second as an 'object-experiencer' verb and the third as an 'oblique-experiencer' verb. Of the three types, as Idan Landau's recent monograph makes clear, oblique-experiencer verbs are typologically the most widespread and robust. Indeed, as Landau (2009: 12) puts it:

> It is particularly telling that in some languages, [what appear as] subject experiencer verbs [in other languages] almost exclusively take this locative [i.e., Class III] form: In Irish and Scottish Gaelic, nominative experiencers hardly exist; one finds instead oblique experiencers introduced by locative prepositions ...

Irish oblique experiencer constructions[9]

a.	Tà	fuath	do	Y	ag	X
	is	hated	to	Y	at	X

'X hates Y'

b.	Tà	eagla	roimh	Y	ar	X
	is	fear	before	Y	on	X

'X is afraid of Y'

Scottish Gaelic oblique experiencer constructions[10]

a.	Is	foil	leam	filmichean
	COP.Pres	pleasure	with.me	films

'I like films/films are pleasing to me'

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[9] J. McCloskey and P. Sells, "Control and A-chains in Modern Irish," *Natural Language and Linguistic Theory* 6 (1988): 143–89, 76a and 77a.

[10] Personal communication by G. Ramchand.

b.	Tha	gaol	aig	Catriona	air	Padraig
	Be.Pres	love	at	Catriona	on	Padraig

‘Catriona loves Padraig’

At the end of his rather involved linguistic arguments, moreover, Landau concludes that all three forms of psych-verbs, in fact, encode the experiencer as an oblique, locative, or dative case. Where this does not appear to be so (e.g., in Class I predicates that depict the experiencer in the nominative case), he posits a variety of secondary tests that demonstrate the generally ‘quirky’ character of nominative experiencers, showing that they fail tests (such as passivization) that other ordinary nominatives would typically pass.[11] Landau summarizes his overall argument in the following manner:

> “Experiencers are mental locations, that is, locatives.”
> To the extent that this thesis is grammatically, and not just metaphorically real, two major consequences follow:
> a. All object experiencers are oblique (or dative) [cf. Class III]
> b. Experiencers [including Class I] undergo locative inversion

The long and the short of Landau’s argument is that even in subject-experiencer constructions (i.e., Class I), where no locative element seems to be present, the locative character of these experiencers can still be demonstrated using other syntactic tests.

Landau overlooks, however, one factor that would have made his analysis much more palatable to those who work on non-Western languages: the frequent use of body-part nouns (rather than or in addition to case markers or adpositions) to express locative or oblique spatial relations. The classic example of this phenomenon in the literature on linguistics is probably the use of body-part nouns in Meso-American languages such as Zapotec. Here are a few examples from Tlacolula de Matamoros Zapotec:[12]

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[11] See I. Landau, *The Locative Syntax of Experiencers* (Cambridge: MIT Press, 2009), 81–131. It should be noted that ‘quirky’ is a technical term in linguistics for a class of subjects that either occur in a non-nominative case or behave syntactically like non-nominative nominal phrases in languages with explicit case-marking.

[12] B. D. Lillehaugen and J. O. Foreman, “Body Parts and the Encoding of THING and PLACE in Zapotec,” in *Studies in Role and Reference Grammar*, ed. L. Guerrero, S. Ibáñez-Cerda, and V. A. Belloro (México: Universidad Nacional Autónoma de México, 2009), 206–08.

a.	R-ahchak	loh	Li'eb
	HAB-hurt	face	Felipe
	'Felipe's face hurts'		

b.	Bēe'ecw	zuu	loh	meʾes
	dog	Neu.stand	on	table
	'The dog is on the table'			

Here, the same term *loh* can operate lexically as either (a) the noun meaning 'face' or (b) the preposition 'on.' In other words, the use of *loh* to code the spatial relation between the dog and the table in (b) is not metaphorical; it is simply part of the ordinary denotational apparatus of the Zapotec language. Similar constructions can also be found in Sumerian, as in the following line from the Sumerian literary text *Gilgamesh and Agga* (line 99).

> **The use of šà 'heart, innards' as a relational noun in Sumerian:**[13]
> ag-ga lugal kiš^{ki}-a šà erin$_2$-na-ka-ni šaĝa-a ba-ni-in-ak
> As Agga, the king of Kish, was in the midst of his troops (šà erin$_2$-na-ka-ni), he was captured.

Here, the Sumerian word šà, which otherwise refers to 'heart' or 'innards,' describes the location of the king Agga in the midst of his troops. Regardless of how we analyze the syntactic structure of the line, the function of šà must be to designate the king's spatial position rather than a part of his body.[14] Moreover, as generally observed by the authors in Sharifian *et al* 2008, a wide variety of languages encode internal states in much the same way that *loh* in Zapotec or šà in Sumerian is used to signify a locative relationship: Internal organs such as the heart or liver may, of course, refer to the organs themselves, particularly once they have been extracted from the body, but they much more commonly play a key role in grammatical forms that express internal states. Even in the absence of substantial evidence to the contrary, however, it is probably unwise to treat body-part nouns in expressions of internal state as inherently metaphorical. These body-part nouns simply express the locative meaning that is an essential component of all statements involving an experiencer.

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[13] J. C. Johnson, *Unaccusativity and the Double Object Construction in Sumerian* (Vienna: LIT, 2010), 137.

[14] Similar arguments could be made for the use of complex prepositions in Akkadian, in which *libbu* 'heart; innards' plays the central role. For an overview, see U. Steinert, "Topologische und projektive Relationen in Akkadischen Keilschrifttexten," in *On Ancient Grammars of Space: Linguistic Research on the Expression of Spatial Relations and Motion in Ancient Languages*, ed. S. Kutscher and D. A. Werning (Berlin: de Gruyter, 2014), 109–94.

In the two dominant languages of the ancient Near East (i.e., Sumerian and Akkadian), there is also solid evidence for the employment of body-part nouns in expressions of internal state. Thanks to the work of Karahashi on the role of body-part nouns in Sumerian 'compound verbs,' for instance, it is clear that the noun šà 'heart, innards,' which can function prepositionally (see above), also regularly appears in predicates that describe internal states. As Karahashi (2000, 145) puts it:

> šà is morphologically unmarked in šà—dab$_5$ ['to feel hurt, to be angry, to be worried'], šà—kúš-ù ['to sooth (one's) heart'], and šà—sìg ['to be afflicted, to feel anxious'], while šà is modified by a pronominal possessive suffix, which refers to the experiencer of feeling, in šà—dar ['to be heartbroken'], šà—gur$_4$ ['to feel wonderful'], šà—sed$_7$ ['to soothe the heart'], šà—túm ['to decide, to plot'] and sometimes also in šà—ḫúl ['to be happy'] and šà—ḫun ['to soothe the heart'].[15]

More recently, Margaret Jaques has devoted a lengthy study to 'le vocabulaire des sentiments' in Sumerian (Jaques 2006) and, though it is a *Schatzkammer* of lexical insights, it does not reference Karahashi's work or the psych-verb approach pioneered by Belletti and Rizzi. Since even a brief reiteration of the lexical and syntactic categories identified by Jaques would lead us far afield, however, it is better reserved for treatment elsewhere.[16]

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[15] Both the passage itself and the interpolated glosses come from F. Karahashi, "Sumerian Compound Verbs with Body-Part Terms," Ph.D. diss., University of Chicago, 2000, passim. The presence or absence of a possessive pronoun modifying a body-part noun in these constructions probably has nothing to do with whether or not they refer to an internal organ, but rather results from the role that the noun in the compound verb construction plays in extending the semantic field of the predicate as a whole. See J. C. Johnson, "Decomposing the DP in Sumerian: Definiteness, Specificity and the BNBV Diagnostic," *Wiener Zeitschrift für die Kunde des Morgenlandes* 98 (2008): 151–88. A study of subsequent anaphoric references to body-part nouns in such constructions is certainly a desideratum; see the discussion of object incorporation in Chamorro in S. Chung and W. A. Ladusaw, *Restriction and Saturation* (Cambridge: MIT Press, 2004), 85–100.

[16] See, above all, M. Jaques, *Le vocabulaire des sentiments dans les textes sumériens: Recherche sur le lexique sumérien et akkadien* (Münster: Ugarit-Verlag, 2006), Chapter 5 (Eléments et relations des éléments constitutifs de la phrase), which approaches many of the same issues in a rather different way. D-stem verbs in Akkadian, in which the grammatical object is *libbu* plus a possessive pronoun operate along very similar lines to Sumerian compound

Before turning to questions that are specifically Mesopotamian, we need to consider the methodological caveats we should draw from these preliminary discussions. First and foremost, the mere existence of grammatical constructions that use body-part nouns to refer to internal states, in any given language, tells us nothing about embodiment *per se*. Moreover, there is no reason to suppose that body-part nouns referring to internal states are necessarily metaphorical. The use of nouns that otherwise refer to internal organs may represent the only way to describe 'internal' states in some languages, particularly those that rely wholly or partly on body parts as relational nouns. Secondly, wherever possible, conceptual metaphors need to be (i) contrasted with 'equivalent' non-metaphorical descriptive practices and (ii) carefully located within emic textual arrays and conceptual frameworks.

In the remainder of this chapter, we will first look at some of the conceptual models proposed in medical or therapeutic approaches to disease causation, before turning to the metaphorical conceptualization of a specific type of fever (U$_4$.DA SÁ.SÁ) in the medical corpus. In our case study, we will focus primarily on the contrast between U$_4$.DA SÁ.SÁ and ordinary descriptions of bodily 'heat' (Akk. *ummu*), as well as the place of U$_4$.DA SÁ.SÁ within the medical corpus and the conceptual frameworks that organize the therapeutic tradition surrounding it.

3 The Mote in Mankind's Eye

The key problem that we face, when we look at emic folk theories about pathogenesis in Mesopotamia, is that each of the Mesopotamian technical disciplines involved with healing postulated a rather different model of how disease operates. As M. J. Geller argues in a forthcoming paper, most descriptions of how Babylonian medicine operated are 'sociological,' in that they depict an intense form of collaboration between those specializing in diagnostics and exorcistic healing (i.e., *āšipu* or *mašmaššu* professionals) and those focused on recipe-driven medicine (i.e., *asû* professionals).[17] Such 'sociological' approaches,

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verbs that include šà, as already suggested by C. Huber, "Complex Predicate Structure and Pluralized Events in Akkadian," in *Universal Grammar in the Reconstruction of Ancient Languages*, ed. É. Kiss (Berlin: de Gruyter, 2005), 189–237; cf. J. C. Johnson, "Review of S. Parpola and R. Whiting, eds., *Assyrian-English-Assyrian Dictionary*," *Bulletin of the School of Oriental and African Studies* 74 (2011): 311–12.

[17] See M. J. Geller, "Babylonian Medicine as a Discipline," in *The Cambridge History of Science*, vol. I., ed. Liba Taub (Cambridge: Cambridge University Press, forthcoming).

stereotypically, consider the *āšipu/mašmaššu* responsible for identifying the disease etiology, while leaving the work of putting together *materia medica* for actual treatment to the *asû*, resulting in a well-defined division of labor. There is actually little or no evidence for this 'sociological' or 'interdisciplinary' model. Each of the two disciplines has its own, internally-complex social history, and nearly the only context in the cuneiform textual record where representatives of both disciplines are found interacting with each other is the royal court, where all of the technical disciplines would have been represented in some way. If we follow Geller in rejecting these 'sociological' or 'interdisciplinary' assumptions, and evaluate each of these disciplines (*āšipūtu* and *asûtu*) instead as a largely independent sphere of knowledge, then we might expect each of the disciplines involved in healing in Mesopotamia to have its own ideas about disease causation and transformation. This kind of 'disciplinary' approach not only allows for the existence of a distinctly medical or therapeutic model of disease etiology, it makes the identification of such a model a central desideratum in on-going work on the history of Babylonian medicine.

The shared common ground for both of these disciplines, at least with respect to disease etiology, was undoubtedly the belief that the ultimate or final cause of all illness lay in the hands of the gods. Where the two disciplines deviate from each other is in their understanding of the chain of intermediate causes lying between the gods and the patient. While *āšipūtu* focuses on identifying the divine or supernatural agent responsible for engendering the disease, hence the frequent use of 'hand' terminology in *The Diagnostic Handbook* (e.g., 'hand' or agency 'of a ghost'), Babylonian medicine (*asûtu*) seeks to identify a chain of intermediate, largely physical causes, leading from the macro-level of heaven and earth to the micro-level of the individual patient. This type of etiological model is most clearly visible in so-called 'chain incantations' such as the following example from YOS XI 5, lines 1–4.

Incantation against Worm[18]

1 Anu engendered the sky, the sky bore the earth,
2 The earth bore the stench, the stench bore the mud,

Geller actually posits a three-fold contrast, since a distinct term, namely KA.PIRIG, existed for the *āšipu/mašmaššu* who specialized in diagnostic omens, but from a purely disciplinary perspective, a KA.PIRIG would have been seen as practicing *āšipūtu* 'the discipline of the *āšipu*.'

[18] N. Veldhuis, "The Fly, the Worm, and the Chain," *Orientalia Lovaniensia Periodica* 24 (1993): 45; translation by N. Wasserman, "On Leeches, Dogs, and Gods in Old Babylonian Medical Incantations," *Revue d'Assyriologie* 102 (2008): 73.

3 The mud bore the fly; the fly bore the 'worm'
4 The 'worm,' the daughter of Gula, is clad in a *lullumtu*-garment, is thick with blood,

As Wasserman has clearly demonstrated, the 'worm' (Akk. *tūltu*) in question here is very likely a leech.[19] Relevant to our purpose, however, is the 'chain' of causal links in the first three lines. Another famous example of this type of chain, also dating back to the Old Babylonian period, begins at the opposite end of the Mesopotamian universe, the earth.

Incantation against Sty[20]
1–2 The earth, they say, the earth bore the mud,
3–4 The mud bore the stalk,
5–6 The stalk bore the ear,
7–8 The ear bore the sty,
9–11 In, they say, the field of Enlil, the square seven *bur* field,
12–13 Sîn reaped, Šamaš gathered,
14–16 Into, they say, the eye of the young man the sty entered.

Here, the chain of causation is made particularly clear by the additional comment in lines 14–16, where the 'sty' (Akk. *merḫu*) that has come into existence through a series of "births" (lines 1–11) is released through the harvesting activities of Sîn and Šamaš. It is only in this mundane context that the pathogen finds its way into the young man's eye. Most discussions of chain incantations have centered on their poetic structure and their effectiveness as *materia medica*.[21] I would like to suggest, however, that one of the main reasons incantations like this were introduced into the medical compendia was, precisely, to provide a vehicle for reflecting on disease etiology within the specific disciplinary context of Babylonian medicine (*asûtu*).

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[19] Wasserman, "On Leeches, Dogs, and Gods," 71–88.

[20] A. Goetze, "An Incantation against Diseases," *Journal of Cuneiform Studies* 9 (1955): 8–18; translation by Veldhuis, "The Fly, the Worm, and the Chain," 48.

[21] E. Reiner, *Your Thwarts in Pieces, Your Mooring Rope Cut: Poetry from Babylonia and Assyria* (Ann Arbor, Michigan: University of Michigan, 1985), 94–100; W. Farber, "*Mannam lušpur ana Enkidu*: Some New Thoughts about an Old Motif," *Journal of Near Eastern Studies* 49/4 (1990): 299–321; N. Veldhuis, "The Heart Grass and Related Matters," *Orientalia Lovaniensia Periodica* 21 (1990): 27–44; Veldhuis, "The Fly, the Worm, and the Chain," 41–64; N. Veldhuis, "The Poetry of Magic," in *Mesopotamian Magic: Textual, Historical, and Interpretative Perspectives*, ed. T. Abusch and K. van der Toorn (Groningen: Styx, 1999), 35–48; T. J. Collins, "Natural Illness in Babylonian Medical Incantations," Ph.D. diss., University of Chicago, 1999; D. Schwemer, "The Ancient Near East," in *The Cambridge History of Magic and Witchcraft in the West from Antiquity to the Present*, ed. D. J. Collins (Cambridge: Cambridge University Press, 2015), 17–51.

In the broader context of Mesopotamian thought, chain incantations such as these are usually spoken of as 'minor cosmogonies,' and similar texts occasionally appear as a kind of schematic preface or introduction in Sumerian 'contest' or 'debate literature.'[22] One of the best examples of this type of introduction appears in *The Debate between Bird and Fish*, which goes as follows:

The Debate between Bird and Fish, lines 4–16[23]

4 Enki, the master of destinies, was the third (of the great gods),
5 He flattened … and established dwelling places …,
6 He took in his hand the waters of the living creatures, the seed that bears life,
7 He laid out side by side the Tigris and the Euphrates, so that they brought the water down from the mountains,
8 He scoured out the smaller streams and positioned the other watercourses.
9 Father Enki made spacious sheepfolds and cattle-pens and provided shepherds and herdsmen,
10 He founded cities and settlements throughout the earth and made the black-headed people (i.e., the Sumerians) multiply,

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[22] See in particular J. J. A. van Dijk, *La sagesse suméro-accadienne: Recherches sur les genres littéraires des textes sapientiaux* (Leiden: Brill, 1953); J. Bottéro, *Mythes et rites de Babylone* (Paris: Slatkine, 1985), 279–328; H. L. J. Vanstiphout, "The Mesopotamian Debate Poems: A General Presentation (Part I)," *Acta Sumerologica* 12 (1990): 272–318; H. L. J. Vanstiphout, "Lore, Learning and Levity in Sumerian Disputations: A Matter of Form, or Substance?" in *Dispute Poems and Dialogues in the Ancient and Medieval Near East: Forms and Types of Literary Debates in Semitic and Related Literatures*, ed. G. J. Reinink and H. L. J. Vanstiphout (Leuven: Peeters, 1991), 23–46; H. L. J. Vanstiphout, "The Mesopotamian Debate Poems: A General Presentation (Part II: Subject)," *Acta Sumerologica* 14 (1992): 339–67; W. G. Lambert, *Babylonian Creation Myths* (Winona Lake: Eisenbrauns, 2013), 399–401; H. L. J. Vanstiphout, "The Sumerian Debate Poems: A General Presentation, Part III," in *He Has Opened Nisaba's House of Learning: Studies in Honor of Åke Waldemar Sjöberg on the Occasion of His 89th Birthday on August 1st 2013*, ed. L. Sassmannshausen (Leiden: Brill, 2014), 229–40; although Vanstiphout's largely pessimistic view of the significance of the minor cosmogonies ("The Mesopotamian Debate Poems (Part I)," 289–95) is not adopted here.

[23] S. Hermann, *Vogel und Fisch—Ein sumerisches Rangsteitgespräch: Textedition und Kommentar* (Hamburg: Dr. Kovač, 2010), 149–151.

11 He provided them with a king as shepherd, elevating him to
sovereignty over them,
12 The king rose as the daylight over the foreign countries.
13 Enki knit together the marshlands, making young and old reeds
grow there,
14 He made birds and fish live in the pools and lagoons …,
15 He gave … all kinds of living creatures as their sustenance,
16 … placed them in charge of this abundance of the gods.

As an introduction to a debate between a bird and a fish about which of the two deserved greater honor, this passage is exemplary for the way it situates the two interlocutors within the cosmic order: both are named together in line 14, as a *merismus* for the living creatures of the marshland. This type of introductory schema, in a sense, allows *The Debate Between Bird and Fish* to function, if not as a kind of *avant la lettre* 'natural philosophy,' then perhaps as a distant precursor to alchemical dialogues such as the famous *turba philosophorum*.[24] Two remarks are pertinent here: (i) the use of chains or sequences of creation as a schema for organizing physical models was well-known in Old Babylonian Mesopotamia, and (ii) the Akkadian chain incantations we examined a moment ago can be distinguished from introductory schemata, such as the one in *The Debate between Bird and Fish*, by the former's limitation of explicit cosmogonic agency to the initial step in the chain.[25] In other words, whereas the Sumerian god of wisdom Enki acts as a cosmogonic agent at each stage in the creation account in *Bird and Fish*, the chain incantations include either no deity at all (*The Incantation against Sty*) or only one in the role of a first cause at the very beginning of the chain (*The Incantation against Worm*).

This should not be taken as evidence for a simplistic opposition between a secular Akkadian tradition and a deity-besotted Sumerian one: The main issue in any description of causation, particularly those in which physical elements of the observable world play an important role, is to correctly specify the agent of a given phenomenon. Indeed, one of the most useful parts of Lakoff and Johnson's *Metaphors We Live By* (1980) is precisely their discussion of causation. Lakoff and Johnson argue that CAUSATION is understood on the basis of a model of DIRECT MANIPULATION, including ‘shared features’ such as the following:

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[24] J. Ruska, *Turba Philosophorum. Ein Beitrag zur Geschichte der Alchemie* (Berlin: Julius Springer, 1931); reference courtesy M. Martelli.

[25] The harvesting work of Sîn and Šamaš (lines 12–13) in the *Incantation against Sty* (see above) technically does not belong to the chain of births (lines 1–11) in the lines preceding.

> The agent has as a goal some change of state in the patient.
> The agent has a ‘plan’ for carrying out this goal.
> The agent is the energy source, and the patient is the energy goal.
> The agent touches the patient either with his body or an instrument (i.e., there is a spatiotemporal overlap between what the agent does and the change in the patient)
> The agent successfully carries out the plan.
> The agent monitors the change in the patient through sensory perception.[26]

This type of conceptual metaphor certainly underlies the widespread ‘hand of a …’ idiom, which plays such a central role in traditional forms of Babylonian diagnostic practice. The ‘Hand of a ghost,’ for example, exhibits all of the defining features of the DIRECT MANIPULATION model, and this explains, to a great degree, its remarkable persistence in the cuneiform textual record.[27] By contrast, if we are willing to acknowledge chain incantations as models of pathogenesis, Babylonian medicine posits a rather different model of causation, a model that privileges the role of seeds, gestation, and birth over direct manipulation. It is, therefore, little wonder that the predicates we find in chain incantations are precisely those of impregnation (Akk. *reḫû*) and birth (Akk. *walādu*). Lakoff and Johnson comment on this model as well,[28] but a fuller discussion of Mesopotamian conceptual models involving birth is best reserved for Steinert’s chapter later in this volume. The contrast between the DIRECT MANIPULATION model used in traditional Babylonian diagnostics and the IMPREGNATION AND BIRTH model that dominates Babylonian medicine is of particular interest, however, since the IMPREGNATION AND BIRTH model allows for the possibility that a ‘seed’ might be spread by a non-agentive entity such as the wind, an option that is not available in the DIRECT MANIPULATION model. Simply put, the IMPREGNATION AND BIRTH model favored in the medical tradition de-emphasizes the agent and focuses instead on increasingly narrower contexts of spatiotemporal overlap (e.g., earth > stench > mud > fly) and the mediating role of the seed or pathogen in a chain of transmission.[29]

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[26] Lakoff and Johnson, *Metaphors We Live By*, 70.

[27] See N. P. Heeßel, “The Hands of the Gods: Disease Names, and Divine Anger,” in *Disease in Babylonia*, ed. I. L. Finkel and M. J. Geller (Leiden: Brill), 120–30, and J. C. Johnson, “The New Perspective on Babylonian Medicine: The Continuum of Allegoresis and the Emergence of Secular Models in Mesopotamian Scientific Thought,” in *Assyrian and Babylonian Scholarly Text Catalogues: Medicine, Magic and Divination*, ed. U. Steinert, Die babylonisch-assyrische Medizin in Texten und Untersuchungen 9. (Berlin: De Gruyter, forthcoming), for the changing etiological significance of the ‘Hand of …’ notations and a more nuanced approach to secularism in Mesopotamian scientific thought.

[28] Lakoff and Johnson, *Metaphors We Live By*, 74–75.

Up to now, the most important discussions of the role of incantations in conceptualizing disease etiology are found in several publications from Nathan Wasserman, in particular, his exploration of the celestial origin of disease in a 2007 paper on Old Babylonian therapeutic incantations.[30] Wasserman speaks of the commonalities between a number of these incantations in terms of a 'minimal sequence' of enumerated diseases or, more colloquially, a 'skeleton-list' that includes the following members: *sikkatu*, *išātu*, *miqtu*, *šanādu*, *ašû*, *samānu*, and *šuruppû*. He draws a contrast between incantations that enumerate only these few diseases (such as YOS 11, 8; Iraq 55, 104; and RA 88, 101) and a "second sub-group [in which] other diseases predominate."[31] As Wasserman goes on to point out:

> One patent difference is the appearance of various demons in the second group: Lamaštu, Asakkum, Muštabbabum, Kūbum, Bēl ūri, and others. Furthermore, the way the two sub-groups treat the question of pathogenesis, the origin of various diseases, is notably different. According to the first group, a long list of diseases has descended from celestial sources.[32]

As tables 1 and 2 in his 2007 paper show, the seven diseases that make up Wasserman's skeleton-list are drawn from a number of different incantations.

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[29] A model for these chains may have been supplied by the narrowing spatiotemporal surfaces that play such a central role in the matrilineal genealogy discussed in J. C. Johnson, "The Origins of Scholastic Commentary in Mesopotamia: Second-Order Schemata in the Early Dynastic Exegetical Imagination," in *Visualizing Knowledge and Creating Meaning in Ancient Writing Systems*, ed. S. Gordin (Berlin: PeWe-Verlag, 2013), 11–55. But it is far more likely that the model was widespread in Mesopotamian society and, consequently, that both the matrilineal genealogy and the chain incantations represent independent textual precipitations of the same general idea.

[30] For useful surveys of the secondary literature on causation in Mesopotamia, see K. van der Toorn, *Sin and Sanction in Israel and Mesopotamia* (Maastricht: Van Gorcum, 1985); Collins, "Natural Illness in Babylonian Medical Incantations."

[31] N. Wasserman, "Between Magic and Medicine—Apropos of an Old Babylonian Therapeutic Text Against Kurārum Disease," in *Disease in Babylonia*, ed. I. L. Finkel and M. J. Geller (Leiden: Brill, 2007), 45.

[32] *Ibid.*

If, however, we focus on texts that enumerate members of the skeleton-list as a direct, uninterrupted sequence, we can actually redefine this skeleton-list in a more restricted and useful way. In four of the incantations cited by Wasserman—i.e., (i) JCS 9, A/B, (ii) YOS 11, 8, (iii) Iraq 55, 104, and (iv) RA 88, 161—the first six of the seven original members of the skeleton-list occur in nearly perfect sequence. In both YOS 11, 8 and RA 88, 161, the first six disease names (*sikkatu*, *išātu*, *miqtu*, *šanūdu*/*šanādu*, *ašû*, and *samānu*) appear in the same sequence without any additional intervening entities. In Iraq 55, 104, *išātu* and *miqtu* are omitted, while in JCS 9, A/B, *ašû* moves into third position after *išātu* and is immediately followed by the additional term *ziqtu*. Thanks to the work of the BabMed team on the Assur Medical Catalogue, in particular the textual reconstruction of its reverse side in a new edition by Ulrike Steinert and Strahil Panayotov, we can now be fairly certain that this sequence of six disease names all appeared at the beginning of the second major subsection of the Assur Medical Catalogue and described non-localized skin lesions.[33] This positioning of the skeleton-list in a section devoted to skin lesions confirms Farber's description of these materials as "incantations warding off skin problems" in his 1990 paper, and also brings greater clarity to the 'celestial' origin that Wasserman posits for this group of diseases.[34]

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[33] Most of the fragments were originally published in G. Beckman and B. R. Foster, "Assyrian Scholarly Texts in the Yale Babylonian Collection," in *A Scientific Humanist: Studies in Memory of Abraham Sachs*, ed. E. Leichty et al. (Philadelphia: University of Pennsylvania Museum, 1988), 1–26. For a recent edition, see J. Scurlock, *Sourcebook for Ancient Mesopotamian Medicine* (Atlanta: SBL Press, 2014), 295–306; but Scurlock does not offer a reconstruction of the entire compendium and does not recognize its bipartite structure. The end of line 61 in the current BabMed reconstruction reads […] ⌜IZI⌝ *sa-ma-nu gìr*^{II}*-giš-šum sàg-ba-nu* DAB-*su*, which basically corresponds to the latter entries in the extended skeleton-list in JCS 9, A/B, namely the sequence *samānu* and *girgiššu*, followed several entries later by *sagbānu*. Note as well that *išātu* appears between *rišûtu* 'redness' and *bubuʾtu* 'pustule' in the list of extracts or cross-references that begins in line 62.

[34] Farber, "*Mannam lušpur ana Enkidu*," 299. As Farber also notes a few pages later, the specific meaning of *libelliānim* "may they extinguish" in the *mannam lušpur* formulae makes a good deal of sense in connection with "warding off eye trouble, skin diseases, and inflammations" (p. 302). Wasserman regularly translates *išātu* as 'fever.' See Wasserman, "Between Magic and Medicine," 51 and n. 17; N. Wasserman, "Maškadum and Other Zoonotic Diseases in Medical and Literary Akkadian Sources," *Bibliotheca Orientalis* 69 (2012): 426. But as the context in the passage cited in the previous footnote shows, the *išātu* in the skeleton-list, like its use in the Middle Babylonian medical correspondence of Šumu-libšu, refers to a type of skin lesion, not a fever. See I. S. Plantholt, "A New Look at the Kassite Medical Letters, and an Edition of Šumu-libši Letter N 969," *Zeitschrift für Assyriologie* 104/2 (2014): 171–81.

Among the passages in a number of incantations that address a celestial origin for diseases, perhaps the most explicit statement occurs in the Old Babylonian incantation YOS 11, 8, one of the four incantations that include the skeleton-list. Wasserman's translation reads as follows: "from the star of heaven they (the diseases) have come down, here the earth has received them" (lines 5–6). As Wasserman explains,

> The simplest, almost self-evident explanation for the account of maladies descending from the skies—if not taken as entirely metaphorical—seems to be an impressive nocturnal shower of bolides and shooting stars which hit the ground and ignite fires. Rendering the relevant incantations as literally as possible, one may find that their whole setting bears the physical consequences of falling meteoric fireballs.[35]

Once we recognize that all six members of the narrowed skeleton-list describe diseases that involve skin lesions to a significant degree (including *išātu*), then the conceptual metaphor involved is abundantly clear: SKIN LESIONS ARE FALLING STARS (THAT HAVE STRUCK THE EARTH). According to this mapping of atmospheric phenomena onto the patient's body, the patient's skin corresponds to the earth, while the source of each disease is one of the stars up in the sky and, ultimately, the deities that these stars represent.[36] In this manner, the diseases associated with skin lesions in Wasserman's skeleton-list comprise a rather coherent subcategory, alongside the landscape metaphors associated with conception and birth.[37]

Landscape and atmospheric metaphors, which really constitute a single domain, serve as the organizing conceptual metaphors for these two arenas involving the treatment of skin lesions and childbirth. The obvious question is whether or not this domain can be situated within some kind of overarching framework. Various elements that were later combined together in first millennium BCE therapeutic compendia, in fact, first appeared in the cuneiform textual record during the Old Babylonian period (ca. 20th to 16th centuries BCE), when they each represented a separate genre. This fact has often been obscured by the slow pace of their publication in modern times, seemingly operating on a thirty-year cycle: the chain and skeleton-list incantations were first made known in the *annus mirabilis* of 1955, a few examples of Old Babylonian therapeutic recipes and a wide selection of medical or therapeutic incantations were made available in YOS 11 in 1985, while a new edition of the Assur Medical Catalogue as well as a new Old Babylonian therapeutic compendium recently identified by Irving Finkel will be published in the near future. Crucially, in all known examples of Old Babylonian medical recipe collections, incantations play no substantial role.[38] On the other hand, many of the first millennium BCE medical compendia include a localized 'cluster' of incantations and, in many cases, these clusters are built around particularly famous incantations that originate in the Old Babylonian period.[39] For instance, incantations related to *The Cow of Sîn* form the core of the childbirth incantations (BAM 248 and duplicates), the skeleton-list incantations are associated with a sub-corpus addressing the skin problem *bušʾānu* (BAM 543 and duplicates), while a version of *The Incantation against Sty* finds its way—no surprise—into the sub-corpus on eye disease (BAM 510 and duplicates).

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[35] Wasserman, "Between Magic and Medicine," 46.

[36] In particular, see F. Rochberg, "Sheep and Cattle, Cows and Calves: The Sumero-Akkadian Astral Gods as Livestock," in *Opening the Tablet Box: Near Eastern Studies in Honor of Benjamin R. Foster*, ed. S. C. Melville and A. L. Slotsky (Leiden: Brill, 2010), 347–59; and F. Rochberg, "'The Stars Their Likenesses': Perspectives on the Relation Between Celestial Bodies and Gods in Ancient Mesopotamia," in *What Is a God? Anthropomorphic and Non-Anthropomorphic Aspects of Deity in Ancient Mesopotamia*, ed. B. N. Porter (Winona Lake: Eisenbrauns, 2009), 41–88; as well as other papers in the same volume edited by Porter. See also B. Pongratz-Leisten, *Reconsidering the Concept of Revolutionary Monotheism* (Winona Lake: Eisenbrauns, 2011).

[37] In addition to the chapters by Steinert and Panayotov in this volume, see the discussion of "matrilineal genealogy" in Johnson, "The Origins of Scholastic Commentary."

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[38] The key word in this formulation is recipe *collections*, since in BAM 393 as well as the Ur medical compendium that will be published by Finkel, no incantations or references to incantations occur. When Wasserman ("Between Magic and Medicine," 52, n. 22) states that all of the Old Babylonian therapeutic texts known to him "combine incantations with therapeutic instructions," he is referring to the four smaller texts (YOS 11, 28; YOS 11, 29; RA 66, 141 and Iraq 55, 104), which were probably used in practice and did not necessarily represent an emergent, specifically medical discipline. On the role of compendia in defining disciplinary identities, see J. C. Johnson, "Introduction: 'Infrastructural Compendia' and the Licensing of Empiricism in Mesopotamian Technical Literature," in *In the Wake of the Compendia: Infrastructural Contexts and the Licensing of Empiricism in Ancient and Medieval Mesopotamia*, ed. J. C. Johnson (Berlin: de Gruyter, 2015), 1–28, and "The New Perspective."

[39] For a useful overview of these different clusters, see the thematically organized groups of medical incantations in Collins, "Natural Illness in Babylonian Medical Incantations." As already emphasized by M. Stol ("Fevers in Babylonia," in *Disease in Babylonia*, ed. I. L. Finkel and M. J. Geller, Cuneiform Monographs 36 (Leiden: Brill, 2007), 1–2), the Fire Incantations published by W. G. Lambert ("Fire Incantations," *Archiv für Orientforschung* 23 (1970): 39–45, plates I–X) have relatively little to do with therapeutic medicine in Mesopotamian: actual disease names occur in just one and a half lines of the dozen fragments that Lambert published (p. 43, lines 28–29: *a-ši-i* IZI *gir-gi-ši bu-ʾ-šá-a-ni a-mur-i-q-a-ni* "ašu-disease, fire, boils, leprosy, (and) jaundice).

This same type of cluster can also be posited for diseases of the gastrointestinal tract in the sub-corpus traditionally known as SUALU (= BAM 574–579), which I will refer to in this chapter using the more lucid label STOMACH. The well-known incantation *The Heart Grass*, along with a number of other cantos wherein the 'heart, innards' (Sum. šà = Akk. *libbu*) play a central role, are clustered in the second and third columns of STOMACH 1 (BAM 574). A second cluster, which we will examine more closely in the next section, appears together with another incantation, *The Broken Heart*, in STOMACH 3 (BAM 578). The extended version of the so-called *Heart Grass Incantation* reads as follows:

STOMACH 1, lines 152–160 (= BAM 574 iii 23–31)

152 Incantation: the belly of the sun-god Šamaš grew sick in the mountains …, but the belly-plant had appeared in Makkan, so the moon-god Sîn …

153 Whose face Šamaš brightened. Šamaš brought the plant down from the mountains.

154 Once he had planted it in the ground, its roots fill the earth, its horns gore the heavens.

155 It seized the belly of Šamaš, when he tasted it; it seized the belly of Sîn in the clouds; it seized the belly of the ox in the stall.

156 It seized the belly of the ram in the fold; it seized the belly of the ass among the herd.

157 It seized the belly of the dog at the door-bolt; it seized the belly of the hog in the pigsty.

158 It seized the belly of the young man, while at play; it seized the belly of the young woman in her bedroom.

159 It seized the belly of so-and-so, the son of so-and-so—*tumurê tugarê*.

160 It is at his request: abandon his body! Wherever he planted (you), abandon! An incantation.[40]

The first millennium BCE form of *The Heart Grass* seen here is a slightly expanded version of its Old Babylonian precursors YOS 11, 11 and 12 (lines 1–15). As Veldhuis emphasizes in his edition of the textual materials associated with *The Heart Grass*, the idiom that organizes the entire incantation is *libbi* X *iṣṣabat* "it (= the heart grass) seized the heart of X."[41] This idiom is really a calque of one of the compound verbs in Sumerian commonly used to refer to internal states, namely, šà — dab5 'to feel hurt, to be angry, to be worried' (see Karahashi's discussion on compound verbs above). *The Heart Grass* is of special interest, moreover, not merely because it adopts a slightly modified version of the pattern we saw in chain incantations (with its STATES ARE ENTITIES WITHIN metaphor replacing the IMPREGNATION AND BIRTH metaphor used in other chain incantations), but also because of its implication that the "plant from the mountains" (*ša-am-ma-am iš-tu* ḪUR.[SAG] in YOS 11, 11, line 1), i.e., the heart grass, was both the pathogen and the cure.[42]

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[40] Given the overall context of the incantation in the medical corpora, the term *libbu* needs to be translated as 'stomach' or 'insides' rather than 'heart,' but I have retained the traditional title.

[41] The verbal form is perfect, "relating each member to the preceding … and apt for a narrative in which time elapses; see Veldhuis, "The Heart Grass and Related Matters," 30 and 34.

Finally, before turning to U_4.DA SÁ.SÁ and other *ṣētu* fevers, with which we will be preoccupied for the rest of this chapter, let us briefly reconsider why Babylonian therapeutic medicine (Akk. *asûtu*) and its practitioners included these clusters of incantations in their recipe collections. Under the usual 'sociological' model, in which *asûtu* operated in collaboration with *āšipūtu*, these clusters of incantations must be seen as no more than an auxiliary agglomeration to the incantation-free Old Babylonian recipe collections. However, if we adopt a disciplinary perspective, in which medicine (*asûtu*) competed with other disciplines such as the practices associated with the exorcist (*āšipūtu*), then we would in fact expect specialists in Babylonian medicine to have developed their own models of disease causation and transformation. As Geller puts it:

> The weakness of all these ['sociological'] approaches is that they fail to grasp that there are two competing disciplines within Babylonian medicine, namely *āšipūtu* versus *asûtu*, i.e., incantation-ritual vs. recipe-based healing, each with its own distinctive theory and practice.[43]

Undoubtedly, the special interest of exorcists and other traditional diagnosticians in causation and, in particular, their use of incantations as the primary means for modeling causation can serve as a cross-disciplinary model for discussing disease etiology. Broadly speaking, we might imagine a kind of 'stimulus diffusion' between the two disciplines concerned with human health: The special role of complex models of causation and their close connection to incantations within the diagnostic discipline (*āšipūtu*) presented a pattern of concerns, genres, and media that stimulated, over time, a similar pattern within the recipe-based discipline of Babylonian medicine (*asûtu*). In this way, emulation can account for the development of clusters of incantations found in the medical compendia. These incantations may or may not have been employed as a form of treatment, as was the practice among exorcists. Nevertheless, in my view, they represent an important medium for the conceptualization of a distinctly medical (or therapeutic) model of disease causation, a model that made extensive use of conceptual metaphors.[44]

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[42] As Reiner (*Your Thwarts in Pieces*, 99; apud Veldhuis, "The Heart Grass and Related Matters," 33) already notes: "[t]hus, the herb that gripped my heart will also undo the effects of the seizure; that which grieved my heart is also the plant that is to soothe my heart." It should also be noted here that the particular way in which the heart grass is de-emphasized as the agent of these acts of seizure (by not repeating the term and maintaining a single unwavering agency throughout the entire sequence) is precisely the same method we find in the matrilineal genealogy in *Enki and Ninhursag*, where Enki's semen is the constant, eventually generating the pharmaceutical plants as well; see Johnson, "The Origins of Scholastic Commentary," 42–43.

[43] Geller, "Babylonian Medicine as a Discipline," 4.

4 Fever Metaphors in Cuneiform Literature: U$_4$.DA SÁ.SÁ as Case Study

The primary goal of this section is to present, in the form of a case study, the behavior and categorization of the disease designated as U$_4$.DA SÁ.SÁ in the medical corpus. In order to properly define this term as a metaphor, however, we need first to identify a non-metaphorical description that can serve as its foil. Thanks to Stol's masterful survey of terminology for 'fevers' in cuneiform, this is a relatively straightforward task. Once we have sketched out the term and its distribution in the medical corpus, we will then examine how the metaphor instantiated in this term fits within the broader system of metaphors that operate in the medical sub-corpus known as STOMACH, as well as within the family of environmental and atmospheric metaphors found elsewhere in the Babylonian medical tradition.

The Akkadian term *ummu* 'heat' represents the most common and prominent description of the 'overheating' of the body or its constituent parts, even in cases that are not limited to 'fever.' As Stol emphasizes, *ummu* 'heat' occurs exclusively in descriptions of symptoms and is never converted into a label for a particular disease or class of diseases. In this respect, *ummu* is quite different from U$_4$.DA SÁ.SÁ, which is normally used as a disease classification. Stol regularly translates the symptom *ummu* as 'fever,' whereas *ḫimiṭ ṣēti* and other terms related to U_4.DA SÁ.SÁ are translated quasi-etymologically as 'sun-heat.' Here, in contrast, I argue that *ummu* should be treated as any form of elevated temperature, ranging from what is often described in colloquial English as "being a little warm" or "having a temperature" to full blown fevers of different types. Crucially, *ummu* is found in a wide variety of body parts, and it can be used to express all manner of situations or nuances, by means of verbs and adverbs that characterize *ummu* in more specific ways. Stol captured the flexible nature of *ummu* quite well in his path-breaking paper.

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[44] There are also, as Geller emphasizes, examples of actual texts that seem to have moved between the two disciplines or undergone hybridization such as the treatments for epilepsy found in *Diagnostic Handbook* XXIX or the prognostic elements attached to certain early exemplars of STOMACH 4 (i.e., SUALU IV).

> The nature of [*ummu*] can be indicated by more or less impressionistic verbs. A body part "holds" [*ummu*], "seizes" [*ummu*], or [*ummu*] "comes to rest." One of the letters says, "the princess whom [*ummu*] repeatedly has seized, has now come to rest through the bandage and potion" (PBS 1/2 72: 27–29). One text speaks of feet "holding" [*ummu*] and "constantly getting" [*ummu*] (BAM 120 III 1, 8). Note the following expressions: the stomach area is "loaded" with it (AMT 39, 1: 27), [*ummu*] repeated "falls" upon him (TDP 66: 68). More technical is "[*ummu*] has released him," perhaps temporarily, for one or more days; one may distinguish this verb from "to leave," i.e., to go away for good. It can be "torn out" (STT 2 300: 22), "completely," "all of it" (BAM 171: 49). Head-[*ummu*] that "holds" a person is "torn out" or, according to a duplicating text "made to stand up (= go away)" (BAM 5 480 II 64 with 3 II 36). A few times we read that [*ummu*] is "stripped away," once belly-[*ummu*] is "made to go up" (BAM 6 597 i 11), or "made to go out" (i 59).[45]

This is the language of description rather than classification. Interestingly enough, it closely resembles the way that we speak about 'a cold' as in 'a cold has settled into my back,' 'I think I'm catching a cold' or even, in one of Lakoff and Johnson's examples from earlier, "my cold has gone from my head to my chest." It goes without saying that we do not speak of 'fever' using these same idioms. The descriptive language used in conjunction with *ummu* is of location and movement, without specifying the nature of *ummu* itself. Simply put, the different formulations associated with *ummu* are applicable to a wide range of phenomena, including but not limited to various types of fever.

If we are searching for a more specific semantic field that may still be defined as 'fever' with all its agonistic features, then we need to turn to *ḫamāṭu* 'to burn' (logogram TAB) and other words related to it. The term *ḫamāṭu* and cognates such as *ḫimṭu* and *ḫunṭu* regularly occur in juxtaposition to 'chills' (Akk. *šuruppû* or *ḫurbašu*), and *ḫamāṭu* in fact serves as the organizing leitmotif in K 2386+, which has been identified as part of the fourth tablet of the STOMACH compendium (traditionally known as SUALU IV):

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[45] Stol, "Fevers in Babylonia," 4. I have systematically replaced Stol's English translation 'fever' with the Akkadian term that it translates (i.e., *ummu*), and omitted references to other Akkadian terms.

Symptomatologies preserved in the first column of STOMACH 4

5′ If a man's epigastrium burns him (*ú-ṣar-rap-šú*) and the breathing of his nose is heavy [...]

6′ If a man's epigastrium is enflamed (*i-ḫa-maṭ-su*), it stings him (*i-dak-ka-su*) (and) his phlegm [dribbles ... (Diagnosis:) ...]

9′ If a man's shoulder blades burn (*ú-ḫa-maṭ-su*) (and) he expectorates blood with his phlegm, that man [... (Diagnosis:) ...]

12′ If, when a man eats bread and drinks beer, his epigastrium gnaws at him (*i-kaṣ-ṣa-su*) (and) his intestines (?) are bloated [...] / (Diagnosis:) U$_4$.DA SÁ.SÁ: ...

15′ If a man is plagued by worries and depression constantly overwhelms him [... (Diagnosis:) ...]

20′ If a man is plagued by worries and depression constantly overwhelms him, a piercing pain constantly affects him, he has a lot of phlegm (and) he is constantly drinking, (Diagnosis:) U$_4$.DA SÁ.SÁ: ...

22′ If, when a man eats bread (and) drinks beer, his belly swells up, (his intestines) are bloated (and) he drinks a lot of water, (Diagnosis:) U$_4$.DA SÁ.SÁ: ...

28′ If, when a man eats bread (and) drinks beer, his intestines (?) are swollen (and) bloated, (and) he drinks [a lot of water], (Diagnosis:) U$_4$.DA SÁ.SÁ: ...

31′ If, when a man eats bread (and) drinks beer, his belly swells up, his urine is blocked, (Diagnosis:) U$_4$.DA SÁ.SÁ: ...

33′ If, when a man eats bread (and) drinks beer, his intestines (?) swell up, he has cramps, and he has diarrhea, (Diagnosis:) U$_4$.DA SÁ.SÁ.[46]

The verb *ḫamāṭu* 'to burn,' which appears prominently towards the beginning of the section above, is closely associated with two semantic fields that regularly describe 'fever' in cuneiform: 'pain' and 'burning.' In both Sumerian and Akkadian, 'pain' is expressed by a verb meaning 'to eat' (gu$_7$ and *akālu* respectively), though the hyponym *kaṣāṣu* 'to gnaw' (in relation to *akālu* as hypernym) appears in line 12′ as a description of fever. In like manner, whereas the hypernym *ḫamāṭu* 'to burn (of epigastrium and shoulder blades)' occurs in lines 6′ and 9′, the hyponym *ṣarāpu* 'to burn, to fire (of bricks), to refine (of metals)' is found in line 5′. While one would expect any prototypical definition of fever to rely heavily on descriptions from another subseries CRANIUM (traditionally UGU, illnesses of the head), the lines above from STOMACH 4 represent one of the most important collocations of terminology for U_4.DA SÁ.SÁ 'fever,' which appears in parts of the medical corpus concerned with diseases of the gastrointestinal tract.

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[46] See the edition in J. C. Johnson, "Towards a Reconstruction of SUALU IV: Can We Localize K 2386+ in the Therapeutic Corpus?" *Le Journal des Médecines Cunéiformes* 24 (2014): 16–18.

Line 6′ marks a point of transition in the principle of organization, shifting from verbs related to *ḫamāṭu* in the symptomatologies (lines 5′–12′) to illnesses that are classified and labeled as U_4.DA SÁ.SÁ (lines 6′–33′). As the bulk of these entries make clear, U_4.DA SÁ.SÁ is a more narrowly defined illness that associates fever with digestive problems as well as emotional difficulties (lines 15′–21′). The transition from symptomatologies involving *ḫamāṭu* to diagnoses invoking U_4.DA SÁ.SÁ is not explicit in the passage above, but hinges upon another disease label: *ḫimiṭ ṣēti* (logogram U_4.DA TAB.BA), 'burning of the *ṣētu*-fever.' In a sense, Stol's description of *ḫimiṭ ṣēti* forms the centerpiece of how Mesopotamians conceptualized fever. The term *ṣētu* corresponds to the logogram U_4.DA, which appears in U_4.DA SÁ.SÁ and often appears together with the verb *ḫamāṭu* (logogram TAB), though not in the passage above. In fact, *ḫamāṭu* may be considered a 'carrier verb' that contributes relatively little to the meaning of *ṣētu*. Largely on etymological grounds, *ṣētu* has often been translated with terms for 'heat exhaustion' and the like, since *ṣētu* derives from *waṣû* 'to go out' (in reference to the sun or other luminaries). As its relationship with gastrointestinal disease implies, however, this etymological interpretation of *ṣētu* is probably a chimera, and we should heed the advice of Großmeister Franz Köcher to focus on the symptomatologies associated with *ṣētu* rather than its etymology:

> The illness designation probably encompasses a number of severe illnesses, in which pain in the limbs as well as stomach and intestinal complaints are accompanied by a high fever.[47]

Although Köcher also allows for the etymological explanation,[48] it is evident that he—as well as Stol—regards the passage in STOMACH 4 above as the definitive *locus classicus* for *ṣētu* in general. He apparently did not consider it problematic that STOMACH 4, in fact, did not address all forms of *ṣētu*, but only a specific form of the disease, i.e., U$_4$.DA (= *ṣētu*) SÁ.SÁ.

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[47] F. Köcher, "Ein Text medizinischen Inhalts aus dem neubabylonischen Grab 405," in *Uruk: Die Gräber*, ed. R. M. Böhmer et al., AUWE 10 (Mainz: Phillip von Zabern, 1995), 214; apud Stol, "Fevers in Babylonia," 25. As an anonymous reviewers notes, Köcher lists "mit starkem Fieber" first in his description, thereby emphasizing the centrality of fever.

[48] See table of translations in Stol, "Fevers in Babylonia," 24–25.

Up to now, scholars have taken for granted that U$_4$.DA SÁ.SÁ is equivalent to another orthography U$_4$.DA KUR-*id*, and that both orthographies can be transcribed as *ṣēta kašid* '(someone) overcome by *ṣētu*-fever.' As I have argued elsewhere, however, there is evidence from the cuneiform lexical tradition that SÁ.SÁ and KUR-*id* should not be equated. In short, the cuneiform sign SÁ can be read as either SÁ, DI, or SILIM in the lexical tradition, and we find all three of these possibilities in the second-order list known as Erimhuš (see generally Johnson 2014).

Erimhuš II 19–21 (MSL 17: 27)

19	sá$^{sa.\ulcorner sa\urcorner}$sá	*šá-na-nu*	'to rival'
20	sá$^{sa.du}$di	*ka-šá-du*	'to conquer'
21	silim$^{si.lim.di}$di	*šu-tar-ru-⌜ḫu⌝*	'to glorify'

The gloss ($^{sa.du}$) in line 20 represents the compound verb sá—du$_{11}$ 'to reach, to conquer,' whose infinitival form is sá—di. As already noted by Cavigneaux, line 20 involves an orthographic pun:[49] Sumerian sá—du$_{11}$ resembles the second and third syllables of the Akkadian infinitive *kašādu* 'to reach, to conquer.' Moreover, since *šadû* is the Akkadian word for 'mountain,' sá—du$_{11}$ was thought to be interchangeable with the Sumerian logogram for 'mountain,' namely, kur. This accounts for why the phrase *šēṭa kašid* '(someone) overcome by *ṣētu*-fever' could be expressed in writing as U$_4$.DA KUR-*id*: The element KUR was a punning logogram for the dictionary root *kašādu* 'to reach, to overcome,' with the phonetic complement –*id* reflecting the ending of its grammatically inflected form *kašid*. Furthermore, since SÁ and DI were alternative values of the same cuneiform sign, many scholars simply assumed that the signs SÁ-SÁ (line 19) stood for sá-di, which again corresponded to the Akkadian expression *kašid*. In other words, according to the traditional understanding, U$_4$.DA KUR-*id* and U$_4$.DA SÁ.SÁ were alternative orthographies for a single disease designation.

There is, however, a lexical tradition that interprets the signs SÁ-SÁ as the expression sá-sá (and not sá-di), while distinguishing this expression from KUR-*id* (i.e., the orthography for *kašid*). In addition to the Erimḫuš passage above, these two distinct lemmata may also be observed in the lexical tablet Izi:

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[49] A. Cavigneaux, "Die sumerische-akkadischen Zeichenlisten: Überlieferungsprobleme," Ph.D. diss., Ludwig-Maximilians-Universität, 1976, p. 126.

Izi tablet C 1–4 (MSL 13: 178)

1	sá-sá	*šu-ta-ḫu-qu*	‘?’
2	sá-sá	*ṣu-mu-ru*	‘to strive for, to pursue (an enemy)’
3	sá-di	*ka-ša-du*	‘to reach, to conquer (an enemy)’
4	⸢sá⸣-dù	*ra-a-du*	‘to tremble’

Although the editors of MSL 13 render all three occurrences of the signs SÁ-SÁ in lines 1–3 as the expression sá-sá, the lexical tradition suggests that line 3 is better interpreted as sá-di = *ka-šá-du* ‘to reach, to conquer (an enemy).’ Since entries in a lexical list are often grouped together based on affinities in form and structure, the expression sá-dù (line 4) would in fact agree well with a corresponding expression such as sá-di (line 3) in the immediately preceding line. Furthermore, several entries following line 4 deal with legal situations, where the sign SÁ must be understood as di ‘lawsuit.’ Judging by how the terms *ṣummuru* (line 2) and *kašādu* (line 3) are employed in other texts, *ṣummuru* seems to describe an agonistic situation that is still in play, whereas *kašādu* describes the victory of one party over the other. This raises the possibility that U_4.DA SÁ.SÁ could be rendered as *ṣēta* (U_4.DA) *ṣummur* (SÁ.SÁ) ‘(someone) struggling with *ṣētu*-fever,’ presumably in contrast to U_4.DA KUR-*id* for *ṣēta kašid* ‘(someone) overcome by *ṣētu-fever*.’ Because *ṣētu* and *ṣummuru* never occur together in the lexical tradition, however, the precise Akkadian reading of U_4.DA SÁ.SÁ remains unclear.[50]

Even if the reading of SÁ.SÁ in the phrase U_4.DA SÁ.SÁ cannot yet be demonstrated, we should not ignore the fact that sá-sá and sá-di are distinguished from each other in the Erimḫuš and Izi lexical tablets above. More importantly, in STOMACH 4, symptomatologies associated with U_4.DA SÁ.SÁ are separated from those associated with U_4.DA KUR-*id* at the beginning of the tablet (K 2386+).[51] In my view, the most important lexical context for defining the overall significance of sá-sá is found in the second-order lexical list Nabnitu:

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[50] The apparent parallel between U_4.DA KUR-*id* and U_4.DA SÁ.SÁ at BAM 111 ii 17′ = BAM 159: 16 (see now BAM 7, line 17′ = M. J. Geller, *Renal and Rectal Disease Texts*, BAM 7 (Berlin: De Gruyter, 2005), 58) is the only evidence in favor of such an equation, but the second manuscript (BAM 159) is a difficult extract tablet rather than a true duplicate, so caution is in order. Parys’s new edition of BAM 159 [“Édition d’un texte médical thérapeutique retrouvé à Assur (BAM 159),” *Le Journal des Médecines Cunéiformes* 23 (2013): 1–88] does not revisit the equation.

Nabnitu XXVII 268–271 (MSL 16: 237)

268	a-da-mìn	*te-ṣi-tu*	'discord, conflict'
269	a-da-mìn di	*šu-te-ṣu-u*	'to fight with one another'
270	a-da-mìn du$_{11}$–ga	*šu-te-ṣu-u*	'to fight with one another'
271	sá$^{sa.sa}$sá	*šu-te-ṣu-u*	'to fight with one another'

This lexical passage draws an equation between two Sumerian expressions for agonistic struggle, a-da-mìn du$_{11}$ and sá-sá, both of which are equated with the Akkadian word *šutēṣû*, literally, 'to go out (in opposition) to one another.' The semantics of *šutēṣû* 'to fight with one another' roughly aligns with those of *šanānu* 'to rival' and *ṣummuru* 'to strive for, to pursue' in the corresponding passages from Erimḫuš and Izi above. The semantic field defined by these Akkadian verbs is also found in Classical Sumerian, for example, in the opening line of *The Class Reunion* [Dialogue 1], part of which reads: ĝá-nu ga-na ga-ab-**sá-sá**-en-dè-en "Come on! Let's have it out!, lit. let's equal/rival one another!" The image here of an agonistic struggle between two competitors is fairly clear in the lexical tradition, but none of these three lemmata is clearly attested in a medical context. In contrast, *kašādu* 'to reach, to conquer' is regularly used to describe the end of a process or the achievement of a goal, including cases of affliction by a disease:

> to conquer a country, a city, to defeat an enemy, to be victorious, to capture an enemy, to arrest a fugitive, a criminal, to surprise (in the act), **to seize (said of diseases, evil spirits, misfortunes, etc.**), to obtain a wish, knowledge, good luck, a friend, to attain old age, to win a case, to obtain possession of objects, merchandise, etc., to get hold of…, to finish completely.
>
> CAD K 271

Although these definitions are rather heterogeneous, they have in common the completion of an action or the achievement of a goal, which is diametrically opposed to the perspective one gets from sá-sá and its Akkadian equivalents. Of the latter, only *ṣummuru* (and its byform *ṣurrumu*) regularly occurs in connection with *kašādu*. This is clear enough in expressions such as *ṣú-um-mu-úr* ŠÀ-*šú li-ik-šu-ud* "let him attain what his heart strives for" (KBo 1 5 i 61), as well as in the bilingual phrase [n]í sè-sè-ge sá im-dè = *ṣú*$^{!}$*-mu-rum ù ka-ša-da-um* "to strive and to attain" (*Inninšagura*, line 139).

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[51] Both terms are also found elsewhere in the medical corpus, as here in a number of tablets from Assur that extract from or duplicate materials in STOMACH: U$_4$.DA SÁ.SÁ, for example, in BAM 52 rev. 10, BAM 112 ii 7, BAM 159 i 16, BAM 174 i 26′ and 28′; U$_4$.DA KUR-*id*, for example, in BAM 66 rev. 4, BAM 111 ii 17, BAM 174 i 21′ and 23′.

It is not entirely clear how the semantic and aspectual opposition between *ṣēta kašid* (U$_4$.DA KUR-*id*) and *ṣēta* (U$_4$.DA) SÁ.SÁ played out in the minds of Babylonian physicians and other literati, particularly as they sought to make sense of gastrointestinal illness. Depending on how much credence one is willing to give the Sumerian usage of sá-sá in non-medical contexts, it might be possible to describe *ṣēta* (U$_4$.DA) SÁ.SÁ as a metaphorical description of intestinal bloating, whereby conflict between the *ṣētu*-fever and the patient—perhaps even envisioned as a verbal debate—was imagined as the cause of the bloating.[52] There is an admittedly narrow and not well-known literary tradition, within the clusters of incantations found in the medical corpus, which depicted dialogue or one-sided diatribe between a patient and a part of his own body. In the gastrointestinal texts known as STOMACH we have one clear example of each type, a dialogue between patient and stomach and a diatribe directed at potential victims by a personification of bile (Akk. *martu*).

STOMACH 1, lines 117–120[53]

117a (Patient:)	"O belly, belly! Where are you going?"
117b (Belly:)	"In order to inflict pain on (lit. eat) the belly of the young man! For me to crush the belly of the young woman!"
118a (Patient:)	"you should not inflict pain on (lit. eat) the belly of the young man! You should not crush the belly of the young woman!

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[52] One clear occurrence of *ṣummuru* does occur in a medical context in STT 89, line 129 (rev. iii 14): ŠA$_3$.MEŠ-*šú ṣu-mu-ru* … "his intestines are swollen…," and this D-stem verbal form, at least in its literal sense, certainly derives from *ṣemēru* 'to swell' rather than from *ṣamāru* 'to strive for'. CAD bases much of its interpretation of *ṣemēru* on formal and semantic similarities between *ṣemēru* and *emēru* 'to swell' as well as the Syriac cognate *ṣ*^{e}*mārā* 'strangury.' But in the Babylonian Talmud, for example, *ʾyštʾ ṣmrtʾ* '*ṣemirta*-fever, lit. fire-*ṣemirta*' (Pesaḥim 25b, ʿAbodah Zarah 28a, and Šabbat 67a) should probably be distinguished from *ṣmyrtʾ* 'strangury' in Giṭṭin 69b (references courtesy Tanja Hidde). This may suggest that some of the underlying ambiguities in Akkadian were still carefully distinguished in the Bavli.

[53] Belly 21 = BAM 574 ii 52–55 + BAM 577: 6′–10′ and parallel in STT 252; line 120 is only found in STT 252; the parallel line in BAM 574 is a concluding rubric.

118b–119	Eat the belly of the ox in the pen, the belly of the ram in the fold (and) the belly of the pig in the pigsty!"
120 (Comment:)	That is: the belly and the head were speaking (to each other): 'Without a hole the wind cannot ... to the anus the way that the snake of the vineyard ... to the back of the ...'

STOMACH 3, lines 112–114[54]

42 (Narrator:)	It (= Bile) looks at someone eating bread, it looks at someone drinking beer, (and says:)
43 (Bile:)	"When you eat bread, when you drink beer,
44	I will fall upon you and you will belch like an ox!"

These translations are based on Collins's dissertation work and Geller's 2007 paper on medical incantations.[55] For the purposes of our discussion, it is highly significant that both of these personifications occur in the same medical treatise, i.e., STOMACH, the same compendium in which we find the most important attestation of U$_4$.DA SÁ.SÁ. Even if specialists are right to question the Akkadian term expressed by the logogram SÁ.SÁ in fever descriptions, the broader context of the STOMACH compendium, with its inclusion of personified interactions between patients and elements of the gastrointestinal tract (i.e., 'stomach' and 'bile' above) strongly favors the possibility of metaphor. At least in an approximate sense, we might speak of U$_4$.DA SÁ.SÁ in terms of "(someone) struggling with *ṣētu*-fever" and contrast it with U$_4$.DA KUR-*id* "(someone) overcome by *ṣētu*-fever."

If U$_4$.DA SÁ.SÁ indeed conveyed the idea of "(someone) struggling with *ṣētu*-fever" and alluded to a rhetorical tradition of dialogues between patient and personified gastrointestinal parts, we might take STRUGGLING WITH FEVER IS (VERBAL) ARGUMENT, however provisionally, as a label for the conceptual metaphor. This is not so very far from the prototypical ARGUMENT IS WAR metaphor in Lakoff and Johnson's seminal work. In the ARGUMENT IS WAR metaphor, ARGUMENT (a hyponym of DIALOGUE) is the tenor, and WAR the vehicle. For the conceptual metaphor in operation here, STRUGGLING WITH FEVER is the tenor, and ARGUMENT the vehicle. How, then, does this particular conceptual metaphor fit into the broader set of landscape and environmental metaphors used for *ṣētu*-fevers? We saw earlier that the Akkadian term *ṣētu* appears consistently in such disease designations, while *ḫamāṭu* 'to burn,' *kašādu* 'to reach, to conquer,' and possibly SÁ.SÁ function as predicates of *ṣētu.* How might we relate conceptual metaphors involving *kašādu* and SÁ.SÁ to a verb such as *ḫamāṭu*, which was apparently meant to be understood literally?

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[54] Martu 1 = BAM 578 ii 42–44.

[55] Collins, "Natural Illness in Babylonian Medical Incantations," pp. 160–162 and 230–231; M. J. Geller, "Incantations within Akkadian Medical Texts," in *The Babylonian World*, ed. G. Leick (New York), 389–399.

Particularly illuminating in this regard is a series of entries in the late Akkadian lexical list known as Malku:

Malku III 203–210b[56]

203	$^{\text{dal.ḫa.mun}}$dalḫamun	*a-šam-šu-ti*	'dust storm'
204b	*áš-me-tu*	MIN	'dust storm'
205	*mu-um-mil-lat ep-ri*	MIN	'dust storm'
206	*me-ḫu-ú*	MIN	'dust storm'
207	úlu(aḫ.me.u)$^{!?}$ di	*ur-pat* NUMUN	'cloud of seeds'
208	su-$^{\text{ḫu.um}}$ḫum-mu	*ṣe-e-tu*	'bright light, heat'
209	su-$^{\text{ḫu.um}}$ḫum-mu	*ḫa-ma-ṭu*	'to burn'
210a	su-ḫum-mu	*šá-ḫa-nu*	'to be(come) hot'
210b	*e-ma-mu*	*šá-ḫa-nu*	'to be(come) hot'

Malku is a late first-millennium BCE lexical list that was meant to explain obscure Akkadian vocabulary. However, as M. J. Geller has hypothesized, at least parts of it may derive from explanatory commentaries (Akk. *ṣâtu*), which were assembled together and reorganized into a single lexical compendium.[57] This implies that juxtaposition and context play an especially important role in the list. The entries in lines 208 and 209 draw our immediate attention, not only because of the curious repetition of an otherwise unattested Sumerian word su-$^{\text{ḫu-um}}$ḫum-mu in a list that is primarily focused on obscure Akkadian vocabulary, but also because of the Akkadian terms that are equated with su-$^{\text{ḫu-um}}$ḫum-mu in these lines: *ṣe-e-tu* and *ḫa-ma-ṭu.* I have translated these terms here with their basic lexical meanings, i.e., 'bright light, heat' and 'to burn' respectively. Their juxtaposition, sequential order, and shared association with the same obscure Sumerian word, however, cannot have been coincidental and were most likely motivated by disease descriptions such as *ḫimiṭ ṣēti* 'burning of the *ṣētu*-fever' or *ṣēta ḫamiṭ* '(someone) burnt by the *ṣētu*-fever.'

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[56] Adapted (with most variants excluded) from I. Hrůša, *Die akkadische Synonymenliste malku = šarru: Eine Textedition mit Übersetzungen und Kommentar* (Münster: Ugarit-Verlag, 2010), 374–75.

[57] M. J. Geller, "Review of Die akkadische Synonymenliste malku = šarru: Eine Textedition mit Übersetzung und Kommentar (AOAT 50), *Archiv für Orientforschung* 53 (2016): 213–15.

The term that Malku equates with both *ṣētu* and *ḫamāṭu*, i.e., su.ḫum.mu (lines 208–209), is not known from Classical Sumerian. We can be fairly sure, however, it is not an Akkadian word due to the phonetic gloss ($^{\text{ḫu.um}}$) included before the element ḫum, as well as the obvious fact that no such Akkadian word is attested elsewhere in the language.[58] This Sumerian term probably refers to 'flesh' (su) that is 'warm' (ḫum), in agreement with the meanings expressed by *šaḫānu* (line 210a) and the textual variant *e-ma-mu* 'to be warm' (line 210b) in the line that immediately follows.[59] While *ṣētu* (line 208) and *ḫamāṭu* (line 209) appear together in the disease label *ḫimiṭ ṣēti* 'burning of the *ṣētu*-fever,' their close proximity here to 'dust storm' (lines 203–206) and 'cloud of seeds' (line 207) suggests their connection with atmospheric phenomena, raising the possibility that even the disease term *ḫimiṭ ṣēti* could have been understood in terms of an atmospheric metaphor. As a matter of fact, the expression *urpat zēri* 'cloud of seeds' (line 207) could point to the physical carrier of the illness. If we recall the chain incantations at the beginning of this chapter, we see many of the same ideas at work here: atmospheric phenomena such as dust storms and clouds of seed distribute potential pathogens, these pathogens manifest themselves in the disease *ṣēta ḫamiṭ*, and this illness produces fever in the human body. The conceptual metaphors embedded in this lexical passage, therefore, map atmospheric features (i.e., heat and wind) associated with a dust storm onto the feverish flesh of the human body. In my view, this represents an etiological model of the pathogenesis of *ṣēta ḫamiṭ*. As

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[58] The dictionaries dutifully list another lexical occurrence in Erimḫuš II 202–204 (*AHw* 1054b and CAD S 350a), but the Erimḫuš passage involves completely different equations and does not shed any light on this passage from Malku.

[59] The gloss in lines 208 and 209 makes it clear that the lemma in question is not the nominal component of the compound verb su-lum — mar 'to slander' (= Akk. *ṭupullû*), namely su-lum. The twenty eight lexical equations involving ḫum in Tablet 26 of the lexical series Aa, beginning with ḫum = ḫamāšu (MSL 14, pp. 407–408), will have to be investigated in another context: the entry in line 10 of this passage (also cited in CAD sub *ḫamû*), which reads $^{\text{ḫu-um}}$ = lum = *ḫa-mu-u šá zum-rim* 'to paralyze (of flesh)', is almost certainly a back translation of the su-ḫum-mu in our text, but there is no reference to paralysis in Malku. The linkage between su-ḫum-mu and *ḫamāṭū* may, at least in part, be based on the similarity between a feminine nominal form of *ḫamû* such as *ḫimītu* '(a kind of paralysis)' and the term *ḫimiṭ* (with tet) in the phrase *ḫimiṭ ṣēti*. It is unclear whether -mu at the end of the form represents the *-ed- morpheme in Sumerian or a banalization, viz. the Akkadian nominative case-ending.

Stol already emphasized, heat and wind are also regularly associated with each other in the medical texts, especially in descriptions of illness involving both *ḫimiṭ ṣēti* 'burning of *ṣētu*-fever' and *šibiṭ šāri* 'blast of wind.'

Furthermore, this conceptual mapping is of interest to historians of ancient Babylonian medicine, because the same two components (wind and heat) appear also in one of the few cuneiform sources that link atmospheric phenomena to particular seasons, i.e., MUL.APIN II Gap A 1–ii 20:

(Spring:)	From the first of Addaru [XII] until 30th of Ayyaru [II] the sun stands in the path of the Anu stars; wind and weather (*zīqu u ṣētu*).
(Summer:)	From the first of Simānu [III] until the first of Abu [V] the sun stands in the path of the Enlil stars; harvest and heat (*ibūru u uššu = ebūru u umšu*).
(Autumn:)	From the first of Ulūlu [VI] until the 30th of Arahšamnu [VIII] the sun stands in the path of the Anu stars; wind and weather (*zīqu u ṣētu*).
(Winter:)	From the first of Kislīmu [IX] until the 30th of Šabāṭu [XI] the sun stands in the path of the Ea stars; cold (*kuṣṣu*).[60]

The entries above survey the four seasons of spring, summer, autumn, and winter. The associations of summer with harvest and heat, and winter with cold, are hardly surprising. It is significant, however, that the two transitional seasons (spring and autumn) are both characterized in the same way, i.e., as a time of 'gusts (of wind)' (*zīqu*) and '(bad) weather' (*ṣētu*).[61] Indeed, this link between adverse weather and the spring and autumnal seasons represents one of our clearest pieces of evidence for the 'natural' origin of certain illnesses in ancient Mesopotamia. As Biggs puts it:

> People in ancient Mesopotamia surely recognized the natural origin of some illnesses, which might occur as a result of overexposure to heat or cold, overeating, eating spoiled food, or drinking too much of an alcoholic beverage. The fact that some diseases were contagious was certainly recognized …, but there was obviously no perception of how (from a

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[60] For the survival of this kind of parapegma in MUL.APIN into the Qumran materials, in particular 1 Enoch 82, see J. Ben-Dov, "A Jewish Parapegma? Reading 1 Enoch 82 in Roman Egypt," in *Time, Astronomy, and Calendars in the Jewish Tradition*, ed. S. Stern and C. Burnett (Leiden: Brill, 2014), 1–25.

[61] For *ṣētu* (also written U$_4$.DA) as '(bad) weather,' see CAD sub *ṣētu*, section 1e.

> modern point of view) contagion occurred. In general, however, illness was perceived as an intrusion coming from outside a person and entering the body in some fashion.[62]

As implied by the passage from Malku above, *ḫimiṭ ṣēti* can be understood not only in terms of landscape and atmospheric metaphors, but also as an example of the IMPREGNATION AND BIRTH metaphor, since the pathogen or carrier of the illness seems to be the cloud of seeds that are generated by storm winds.

Once we recognize how atmospheric wind and weather serves as the vehicle or model for conceptualizing 'wind and weather' within the internal cavities of the human body (esp. the gastrointestinal tract), it comes as no surprise that one of the main clusters of incantations associated with gastrointestinal illnesses in the STOMACH sub-corpus also makes use of these very metaphors as etiological models. The cluster of incantations in STOMACH 1 is dealt with at length in a paper that is currently in press ("The New Perspective"), so I will not belabor it here, only to point out the suggestive use of the term 'dust storm' (Akk. *ašamšūtu*) in one of the incantations below:

STOMACH 1, lines 111–116[63]

111 Incantation: What fills your innards? What fills your innards?
112 Whom shall I send as the canal-inspector inside you?
113 May they bear shovels of silver and spades of gold! May they open up the waterways!
114 May they open up the canals! Let his excrement go out!
115 May the **dust storm** (Akk. *ašamšūtu*) inside of him come out! May Šamaš see it! The incantation is not mine!
116 Asalluḫi and Gula cast it and I picked it up. O Gula! cure him and accept your payment! Incantation.

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[62] R. D. Biggs, "Medicine, Surgery, and Public Health in Ancient Mesopotamia," in *Civilizations of the Ancient Near East*, ed. J. M. Sasson (New York: Scribner, 1995), 1912. F. Rochberg, *Before Nature: Cuneiform Knowledge and the History of Science* (Chicago: University of Chicago Press, 2017) has now problematized 'nature' as a category in Mesopotamia, in a fundamental way, while retaining the central role of norms, both human and non-human, in Mesopotamian science. As I have argued in Johnson, "The New Perspective," the key issue, in my view, is the conceptualization of causal agents and Biggs is clearly acknowledging here the reality of ordinary, viz. non- supernatural, causal mechanisms rather than making a claim about 'nature' *per se*.

[63] BAM 574 ii 46–51 and STT 252 16–20.

The word *ašamšūtu* 'dust storm' is exactly the same term that figured prominently in the Malku passage we looked at a moment ago. Here, the incantation portrays the passageways of the gastrointestinal system using a distinctively Mesopotamian analogy, i.e., the rectification of storm-damage done to the network of canals in the Mesopotamian alluvium. Much more so than the neutral descriptive or non-metaphorical language of 'heat' (Akk. *ummu*), the rich metaphorical (and conceptual) language used here provides us with "a rudimentary theory of the world" (to quote Quine), linking a dust storm and its consequences with the known facts of gastrointestinal disturbance.[64] The image of Lilliputian lady workers emptying out the intestines with spades of silver and shovels of gold, as if they were clearing canals after the spring floods, may remind us of something from Rabelais or Swift. In fact, however, these incantations represent metaphorical mappings between the Mesopotamian landscape in the wake of spring floods and the digestive difficulties addressed in the first tablet of the STOMACH sub-corpus, which is largely concerned with problems of *kīs libbi* 'gastric constriction.'[65]

5 Linear vs. Non-linear Pathogenic Channeling

Having illustrated how conceptual metaphors based on the Mesopotamian landscape and atmosphere were influential in shaping models of disease causation, we now face new questions concerning the textual record of Babylonian therapeutic medicine. Foremost among these questions is how such models of disease etiology or causation might be reflected in the textual structure of medical compendia. As I will suggest, the contrast between medical and traditional diagnostic models of external pathogenesis can be identified by the way these two medical disciplines describe the transformation of one disease into another within the body. Here, we are no longer concerned about the relative agency or instrumentality of the pathogen, but rather the directionality of change: Disease transformations in prototypical examples of medical remedies are 'linear,' in that the pathway of disease transformation basically follows the head-to-foot order evident in parts of the medical corpus. On the other hand, descriptions of various forms of epilepsy (see below) appear to deviate from this order in ways that are decidedly non-linear. In order to explain this contrast between linear and non-linear transformations of disease, we need to briefly delve into the structure of the medical corpus as defined in the Assur Medical Catalogue.

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[64] I presuppose here Rochberg's contrast between Quine's "observation categoricals," which Quine himself glosses as "rudimentary theories of the world," and the countervailing idea of a Humean "constant conjunction." It is the metaphorical component at work in STOMACH 1, lines 111–116, that presents us with "a rudimentary theory of the world." See, in particular, Rochberg, *Before Nature*, 174–75 and 186–87.

[65] Stol translates *kīs libbi* as 'colic', but nowadays the abdominal pain, wind and obstruction that define colic are mostly associated with children, which is not the case with *kīs libbi*.

Thanks to a new edition of the Assur Medical Catalogue (hereafter AMC), which will appear in the BAM series under the editorship of Ulrike Steinert, the bipartite structure of AMC can no longer be doubted. Just as Esagil-kīn-apli's edition of *The Diagnostic Handbook* and the physiognomic omen collections was bipartite in structure, likewise, the corpus described in the Assur Medical Catalogue (AMC) consists of two major subsections: The first half of AMC is anatomy-driven and is generally organized from head to toe. The second half is more heterogeneous and mostly covers temporary, external, or externally-caused conditions, such as non-localized skin diseases, injuries, ritual and cultic infelicities, pregnancy and birth, as well as veterinary medicine. As Stol once remarked about the principle of organization applicable to epilepsy entries in *The Diagnostic Handbook*, "[o]ne gets the impression that not the symptoms, but [rather the] diagnoses [i.e., disease classification] determine the order,"[66] and much the same can be said for the second half of the medical corpus defined by AMC.

Both of these large-scale bipartite compendia—the *āšipūtu* materials assembled by Esagil-kīn-apli and the medical corpus defined by AMC—were probably emulating the structure of the Old Babylonian anatomical list known as Ugu-mu.[67] Of the two, the *āšipūtu* materials have been more widely studied so far. The relationship between *The Diagnostic Handbook* (= SA.GIG) and the physiognomic materials (= *Alamdimmû* and related texts), both of which were edited by Esagil-kīn-apli at the end of the second millennium BCE, is in fact explained in the famous "extended colophon" of Esagil-kīn-apli that Finkel published in 1988:[68]

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[66] M. Stol, *Epilepsy in Babylonia*, Cuneiform Monographs 2 (Groningen: Styx, 1993), 57.

[67] See the chapter by M. Erica Couto-Ferreira later in this volume.

[68] The following translation is by I. L. Finkel, "Adad-apla-iddina, Esagil-kin-apli, and the Series SA.GIG," in *A Scientific Humanist: Studies in Memory of Abraham Sachs*, ed. E. Leichty et al. (Philadelphia: University of Pennsylvania Museum, 1988), 143–59.

Esagil-kīn-apli's Colophon B rev. 28b′–30′

28b′ … *sa-kik-ka ri-kis* GIG *u ri-kis k*[*u-ri*]
29′ *alam-dím-mu-ú bu-un-na-né-e la-a-nu ši-mat* NAM.LÚ.U$_{18}$.L[U]
30′ *šá* 40 *u* PAP.PAP *i-ši-mu šá* ÉŠ.GÀR *ki-lal-la-an* K[É]Š*-su-nu* 1*–ma*
28b′ SA.GIG (concerns) all diseases and all (forms of) distress;
29′ *Alamdimmû* (concerns) external form and appearance (and how they imply) the fate of man
30′ which Ea and Asalluḫi/Marduk (?) ordained. (Regarding) the twin series, their arrangement is one.

Earlier in the same text, Esagil-kīn-apli writes that the edition of *The Diagnostic Handbook* is organized "from the top (of the head) to (the end of) the feet" (TA *muḫ-ḫi* EN GÌR.ME[Š]), and Livingstone has observed that "the phrase 'from head to toe' refers to the standard order of referring to body parts, as given in the lexical list Ugu-mu (MSL 9, pp. 49–73)."[69] More recently, Veldhuis pointed out that the bipartite structure could be discerned as well in the Old Babylonian version of Ugu-mu. As he puts it:

> After the section on toes, where the "head to toe" arrangement comes to an end, the text continues with words that refer to ages ("my youth," etc.) or to the body as a whole ("my stature," "my shadow," "my skeleton"). This section is badly preserved in the Nippur material, but is now attested in several unprovenanced exemplars.[70]

In all likelihood, therefore, Esagil-kīn-apli modeled the bipartite structure of the professional literature of *āšipūtu* (including *The Diagnostic Handbook* and the physiognomic materials) on the bipartite structure of the Old Babylonian anatomical list Ugu-mu, and the same goes for the medical treatises catalogued in AMC.

The bipartite structure of the various compendia concerned with diagnosis and treatment has two important implications for how we think about disease classification in ancient Mesopotamia: (i) The position of a particular illness in the bipartite compendium becomes the single most important criterion for understanding the native categorization of diseases, since the bipartite structure contrasts an anatomy-driven classification with a non-anatomy-driven classification, and (ii), as I will argue presently, these two contrasting models for the classification of disease also represent two different native models for the transformation of one disease into another over time. In other words, the structure of the Assur Medical Catalogue implicitly classifies all named diseases as either anatomical or non-anatomical, and this classification is then 'operationalized' in terms of how specialists in Babylonian medicine imagined one named disease changing into another. At least in the anatomy-driven first half of AMC, transformations of one disease into another usually correspond to the movement of an illness from one anatomical zone to the next. For example, the STOMACH sub-corpus begins with this incipit: "If a man is ill with 'phlegm' (*suālu*), and it (= the illness) turns into 'gastric constriction' (*kīs libbi*)."[71] Whereas descriptions of 'phlegm' (*suālu*) occur exclusively in another medical sub-corpus (BRONCHIA, concerned with the respiratory system), 'gastric constriction' (*kīs libbi*) is the central preoccupation of the first tablet of the STOMACH sub-corpus, which is devoted to illnesses of the gastrointestinal tract.[72] In short, the transformation of *suālu* into *kīs libbi* is modeled on the linear sequence of the two compendia BRONCHIA and STOMACH in the medical corpus. Of course, this type of linear approach to disease classification and transformation only makes sense in the first, anatomy-driven part of the therapeutic corpus. Not surprisingly, in the second half of the corpus, which is organized on the basis of non-localized or externally-caused conditions, the processes of transformation are quite different.

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[69] A. Livingstone, *Hemerologies of Assyrian and Babylonian Scholars* (Bethesda: CDL Press, 2013), 273.

[70] N. Veldhuis, *History of the Cuneiform Lexical Tradition* (Münster: Ugarit Verlag, 2014), 159. See also M. É. Couto-Ferreira, "Etnoanatomá y partonomía del cuerpo humano en sumerio y acadio: El léxico Ugu-mu," Ph.D. diss., Universitat Pompeu Fabra, 2009, 343–63; and Johnson, "Introduction: 'Infrastructural Compendia' and the Licensing of Empiricism."

The linear character of the movement and transformation of illness in the first, anatomy-driven part of AMC is made particularly clear in a so-called 'extract tablet' (BAM 174), which collects together medical entries from different sources and writes them up in a single tablet. As Stol points out, BAM 174 is largely concerned with diseases of the upper respiratory and digestive tracts, even though it turns to the disease known as '(broken) oath' (NAM.ERIM$_2$

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[71] DIŠ NA *su-a-lam* GIG *ana ki-is* ŠÀ GUR-*šú*.

[72] The idiom *itâr*(GUR)-*šu*/*ši* requires an (ethical) dative pronoun following the intransitive verb *târu* that refers to the person suffering the illness. The few examples that seem to omit this pronoun result from haplography preceding a word beginning with /šu/ (see Johnson, "Towards a Reconstruction of SUALU IV," 12 n. 4). The pronoun refers to the person negatively affected by the illness, while the subject of the intransitive verb *târu* is the illness itself. This is nicely captured in Stol's translation of the incipit to Diagnostic Handbook XXVIII: "If the Hand of a Spirit turns **for him** into an.ta.šub.ba" (*Epilepsy in Babylonia*, 55).

= *māmītu*) at the tablet's end.[73] The beginning of the tablet is damaged. However, when the extracts become recognizable, they are identified as coming from the lung disease tablet BAM 558 (obv. 11′–20′) whose contents are akin to BRONCHIA,[74] and subsequently from STOMACH 4 and STOMACH 5 (obv. 21′–rev. 9), before arriving at the telltale entry: "If a man is afflicted with 'burning of *ṣētu*-fever' (*ḫimiṭ ṣēti*) (and) it turns into 'oath'-disease (*māmītu*),…." (rev. 25).[75] If the extract tablet had simply culled passages in the same order as the therapeutic compendium, one might suppose that the scribe had simply followed the order of his sources. The occurrence of this line in rev. 25 shows that the transformation of *ḫimiṭ ṣēti* into *māmītu* was conceptualized as the transformation of an illness from one type to the next within a linear model of pathogenesis.[76] In contrast to this linear paradigm in the first half of AMC, the diseases named in the second, non-anatomy-driven part of AMC seem to be capable of changing into other named illnesses in non-linear or reversible ways. The most famous examples of non-linear transformation occur in entries concerned with epilepsy in *The Diagnostic Handbook* XXVIII:

Diagnostic Handbook XXVIII 37–49[77]

37–39 If "Hand of a ghost" (ŠU GIDIM.MA) turns into epilepsy (AN.TA.ŠUB.BA) …

40–42 If epilepsy (AN.TA.ŠUB.BA) turns into "Hand of a ghost" (ŠU GIDIM.MA) …

43–46 If epilepsy (AN.TA.ŠUB.BA) turns into "Hand of Ištar" (ŠU ^{d}INANNA) …

47–49 If "Hand of Ištar" (ŠU ^{d}INANNA) turns into epilepsy (AN.TA.ŠUB.BA) …

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[73] Stol, "Fevers in Babylonia," 37; Johnson, "Towards a Reconstruction of SUALU IV," 34–35.

[74] Tablet BAM 558 probably belongs to BRONCHIA, even though it cannot at present be placed with certainty within that sub-corpus.

[75] DIŠ NA U$_4$.DA TAB-*su-ma ana* NAM.ERIM$_2$ GUR-*šú*. The text actually has the predicative form of *ḫimiṭ ṣēti*, namely *ṣēta ḫamiṭ*, but in the translation I have used the citation form to avoid confusion.

[76] There are also indications of other types of 'linearity' in the second half of AMC: Stol (*Epilepsy in Babylonia*, 56), for example, discusses the role of relative severity in ordering diseases ("It is possible that this order reflects successive stages of the disease, or that it ascends from milder to more severe forms"), but in the absence of a metric for severity, it is difficult to make sense of this type of arrangement.

[77] Adapted with incipits only and ethic datives omitted, from Stol, *Epilepsy in Babylonia*, 81–88; cf. N. P. Heeßel, *Babylonisch-assyrische Diagnostik* (Münster: Ugarit-Verlag, 2000), 307–17.

The four entries above are paradigmatic, non-linear, and reversible: “Hand of a ghost” can turn into epilepsy or vice versa, epilepsy can turn into “Hand of Ištar” or vice versa, and as the series of transformations goes on, it becomes increasingly clear that any of the serious illnesses associated with epilepsy can turn into any other.[78] Stol described this unusual passage in the following way:

> The first section [of Diagnostic Handbook XXVIII] on “changing into” (lines 37–56) is highly exceptional for the diagnostic handbook. Firstly, no symptoms are given: the characteristics of every “Hand” [are] supposed to be known to the reader. Secondly, almost all entries add a recipe, each of which is “boxed” this way. We do not have therapeutic texts giving prescriptions for epilepsy; but this section may provide them, filling the gap.[79]

Stol’s description above already anticipates the primary objection to treating these materials as a non-linear counterpart to the linear transformations we encountered earlier: They are attested in one of the primary compendia of traditional diagnostic practice (i.e., *The Diagnostic Handbook*), rather than the medical compendia. But the addition of recipes to this section of *The Diagnostic Handbook*, as well as the corresponding absence of therapies for epilepsy [AN.TA.ŠUB.BA] in the rest of the medical corpus, may well suggest that the editor of the Assur Medical Catalogue had Diagnostic Handbook XXVIII in mind when he drew up AMC sections XVII and XVIII (= lines 84–98).[80] These sections of AMC, wedged between XVI DIVINE ANGER and XIX POTENCY, include the key phrase ÉN DINGIR.MU ⸢*ul i*⸣-[*di*], as well as a reference to the patient’s personal god and/or goddess ([DIŠ NA DINGIR-*šú u* ^{d}]⸢15⸣-*šú*). The first of these (ÉN DINGIR.MU *ul i-di*) is the well-known centerpiece of the DINGIR.ŠÀ.DIB.BA incantations,[81] while the reference to the personal god and/or goddess may point to the fact that most 'epilepsy transformations' are qualified as "Hand" of one of the major deities (Sîn, Šamaš, or Ištar) or of the god of his city (ŠU DINGIR URU-*šú*). Epilepsy (AN.TA.ŠUB.BA) itself is only mentioned in line 92 of AMC.

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[78] M. J. Geller was one of the first to comment on the distinctive structure of this section in “A Recipe against ŠU.GIDIM,” in *28. Rencontre assyriologique internationale in Wien*, AfO Beiheft 19 (Horn: Ferdinand Berger & Söhne, 1982), 192–97, where he also discusses the pharmacology for “Hand of a ghost.”

[79] Stol, *Epilepsy in Babylonia*, 81–82.

[80] It is also noteworthy that the materials collected in the fourth subseries in *The Diagnostic Handbook*, namely *šumma miqtu imqussuma* (tablets XXVI through XXX), often stem from older editions that did not differentiate diagnostic from therapeutic materials so rigorously. This is particularly clear in the links between STOMACH 4 (= SUALU IV) and Diagnostic Handbook XXXI, especially in BAM 66. See I. L. Finkel, “On TDP Tablets XXIX and XXXI, and the Nature of SA.GIG,” *Journal of Cuneiform Studies* 46 (1994): 87–88; Heeßel, *Babylonisch-assyrische Diagnostik*, 348; and Johnson, “Towards a Reconstruction of SUALU IV,” 35.

The placement of non-linear epilepsy transformations in the middle of the second half of AMC stands in contrast to the linear character of disease transformations in the first half of the corpus. The non-linear disease transformations in Diagnostic Handbook XXVIII, which may correspond in some way to sections XVII and XVIII in the second half of AMC, were organized in terms of supernatural causal agents and the relationship between a patient and his or her personal deity. Little wonder that it was the supposedly divine or supernatural origins of epilepsy that the Hippocratic author would later use as a straw man in *The Sacred Disease* to define his art as properly scientific.[82] For our purposes here, however, we must ask: If Mesopotamian demonology serves as the organizing principle for the non-linear transformations in Diagnostic Handbook XXVIII, what was the principle underlying the linear transformations of illness in the first half of the Babylonian medical corpus as defined in AMC? The answer I propose here, based on landscape and atmospheric metaphors discussed earlier, involves the conceptualization of the gastrointestinal system in its entirety as a single canal or waterway leading from mouth to anus. The regular movement of food and drink through the alimentary canal is the presupposed norm against which the illnesses found in the STOMACH sub-corpus are defined. This dominant metaphor, i.e., ALIMENTARY CANAL AS CHANNEL/WATERWAY, was also one of the primary conceptual metaphors underlying the linear organization of the first half of AMC. Simply put, the channeling of pathogenic transformations within the body was modeled, first and foremost, on the regular movement of food and drink through the alimentary canal, but also, indirectly, on the segmentation of medical treatises in the anatomy-driven first half of the Assyrian Medical Catalogue.

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[81] W. G. Lambert, "DINGIR.ŠÀ.DIB.BA Incantations," *Journal of Near Eastern Studies* 33/3 (1974): 267–322.

[82] On the use of epilepsy as a straw man against which the Hippocratics could define their own style of medicine, see now M. Asper, "Medical Acculturation? Early Greek Texts and the Question of Near Eastern Influence," in *The Frontiers of Science: Essays in Honor of Heinrich von Staden*, ed. B. Holmes and K.-D. Fischer (Berlin: de Gruyter, 2015), 19–46.

6 Conclusion

If *ṣēta ḫamiṭ* fever was conceptualized as a dust storm trapped in the alluvial plains of the human gastrointestinal system, what possible role could the two other forms of *ṣētu* fever (i.e., *ṣēta kašid* [U_4.DA KUR-*id*] and *ṣēta* [U_4.DA] SÁ.SÁ) have played in this fluvial metaphor? One possibility, which can only be sketched out here in rough outline, involves the conceptualization of an agonistic dialogue between the patient and the *ṣētu* fever that is attacking him. This interpretation would nicely harmonize with personifications of 'stomach' (Akk. *libbu*) and 'bile' (Akk. *martu*) found elsewhere in the STOMACH sub-corpus. With its invocation of ARGUMENT or DIALOGUE, such an interpretation would also return us to the central theme of Johnson and Lakoff's *Metaphors We Live By*. The obvious point of contact between the human gastrointestinal tract and metaphoric representations involving ARGUMENT and DIALOGUE, at least to the ancient Mesopotamian mind, was the banquet. As Vanstiphout and Glassner have shown in detail, elite banquets served as the pre-eminent context for literary debates, in which personifications of domesticated plants and animals, seasons, and the like debated their relative merits at court. In the Sumerian debate known as *Ewe and Grain*, we learn of this context directly:

Ewe and Grain, lines 65–70[83]
65 They (= Ewe and Wheat) drank sweet wine,
66 They drank tasty beer,
67 And when they had drunk sweet wine
68 And sated themselves on tasty beer,
69 They started a quarrel (du_{14} mi-ni-ib-mú-mú-ne) in the midst of the watered fields,
70 They held a wrangle (a-da-mìn mu-un-AK-ne) in the dining hall.

Banquets—along with the debates, dialogues, and diatribes that took place in their midst—were the central preoccupation of the entire productive economy in ancient Mesopotamia, where each sector and each commodity played its distinct role. It is in this realm of fictive personifications that, for example, Ewe and Wheat debate their relative merits as foodstuffs, and we are led to imagine these foodstuffs in debate, even as they make their way through the alimentary canal. As Vanstiphout correctly insists,[84] this *mise en*

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[83] B. Alster and H. Vanstiphout, "Lahar and Ashnan: Presentation and Analysis of a Sumerian Disputation," *Acta Sumerologica* 9: 1–43, quoted translation on pp. 18–19.

[84] Vanstiphout, "The Banquet Scene," 21.

abyme—the contentious foodstuffs mirroring the debates held by those who were consuming them—would have been a particularly rich source of conceptual metaphor for Babylonian physicians seeking to make sense of gastrointestinal illness.

The stereotypical view of the ancient Mesopotamian healing professions involves a dramatic either/or. The exorcist (Akk. *āšipu*) is portrayed as wildly imaginative, postulating deities, demons, and ghosts as causal agents, while the physician (Akk. *asû*) is busy with his recipes, seemingly unaware of etiological theories. This either/or also easily plays into the notion that, *in extremis*, when pharmaceutical remedies failed, physicians may have turned to exorcism or prayer. There may be some slim indication of this in the incipit of CRANIUM 3 ("If headache [SAG.KI.DAB.BA], due to 'Hand of a ghost' [ŠU GIDIM.MA], persists in someone's body and it cannot be dispelled, nor can it be stopped with bandages and incantations, …"), a preamble that is amplified in other non-canonical recipe collections (e.g., BAM 155 and BAM 221), where treatments are given in case both 'medicine' (*a-su-ti*) and 'exorcism' (MAŠ.MAŠ-*u-ti*) fail to work. But the non-linear pathogenesis surrounding epilepsy in *Diagnostic Handbook* XXVIII does not seem to be part of this pattern. Rather than ranking the effectiveness of different treatments, moving anachronistically from the seemingly biomedical to fringe therapies, the placement of non-linear transformations of epilepsy in the non-anatomical second half of AMC was probably the act of an editor (or a discipline) seeking to lend greater internal coherence to the medical corpus. As we can see in Table 3.1 below, the non-linearity of recipes in Diagnostic Handbook XXVIII makes perfect sense in the context of exorcistic healing (Akk. *āšipūtu*):

TABLE 3.1 *Comparison between Recipe-driven medicine* (asûtu) *and Incantation-and-ritual-driven exorcism* (āšipūtu)

	Recipe-driven medicine (*asûtu*)	**Incantation-and-ritual driven exorcism (*āšipūtu*)**
Pathogenic agency	Largely de-emphasized in favor of mediating pathogens or carriers	Emphasized through the assignation of individual diseases to the 'hands' of specific, intermediate beings (demons, ghosts, types of impurity)

	Recipe-driven medicine (*asûtu*)	**Incantation-and-ritual driven exorcism (*āšipūtu*)**
Source or vehicle of metaphorical conceptualization	Landscape and atmospheric metaphors, occasionally supplemented with non-ritual human practices	Largely drawn from ritual procedures and traditional incantations that are used elsewhere in *āšipūtu*
Type of disease transformation	Linear (movement from one anatomical zone to the next, from head to foot, mouth to anus)	Non-linear (movement not aligned with anatomical models)

Because non-linear transformations could not be articulated as linear conceptual metaphors, such as ALIMENTARY CANAL AS CHANNEL/WATERWAY, they could not be admitted into the anatomy-driven first half of the Assur Medical Catalogue and were relegated to the more heterogeneous (and poorly attested) second half. This suggests that both disciplines maintained their own doctrines concerning disease etiology, and these doctrines were, to a great degree, conceptualized through a limited number of dominant metaphors. As Danesi notes in his discussion of the role of metaphor in scientific reasoning:

> Scientific reasoning too is based on conceptual metaphors. Phenomena such as atoms, gravitational forces, or magnetic fields cannot be seen with the eyes. So, scientists use metaphor to take a look, so to speak, at them (Black 1962; Leatherdale 1974; MacCormac 1976; Gentner 1982). This is why atoms are described as "leaping" from one quantum state to another, electrons as "traveling in circles" around an atomic nucleus, and so on. Physicist Robert Jones (1982, 4) points out, rather appropriately, that for the scientist metaphor serves as "an evocation of the inner connection among things."[85]

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[85] Danesi, "On the Metaphorical Connectivity of Cultural Sign Systems," 41. The authors cited are M. Black, *Models and Metaphors* (Ithaca: Cornell University Press, 1962); W. H. Leatherdale, *The Role of Analogy, Model and Metaphor in Science* (New York: New Holland, 1974); E. R. MacCormac, *Metaphor and Myth in Science and Religion* (Durham: Duke University Press, 1976); D. Gentner, "Are Scientific Analogies Metaphors?" in *Metaphor: Problems and Perspectives*, ed. D. S. Miall (Atlantic Highlands: Humanities

Seen in this light, it is not surprising that complex metaphorical models, often embedded in clusters of incantations, eventually found their way into medical compendia. In much the same way that tables of content and theoretical prefaces orient the reader to the overarching logic of technical handbooks today, the conceptual metaphors embedded in clusters of incantations achieved this same regimenting function in the medical handbooks of ancient Mesopotamia.

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CHAPTER 4

Aristotle's Heart and the Heartless Man

Lesley Dean-Jones

Aristotle's account of the anatomy of the heart in *Hist. an.* III is best understood as a description of the human fetal heart, in which the atria communicate through the foramen ovale, and the ventricles through a ventricular septal defect, observed or imagined. The description of these structures as being formed when the blood vessels "pass through" the heart directly contradicts Aristotle's view elsewhere on the relationship between the heart and its vessels, but suited his purposes as a useful metaphor. Similar conceptions of the heart were, in fact, articulated earlier by Syennesis and Polybus, who however perceived blood vessels as actually crossing and forming the heart where they intersected. For Plato, reducing the heart to merely a crossing of blood vessels was problematic, so he developed this image of crossing into the metaphor of a knot.

Aristotle, as is his normal practice, begins his discussion of the heart in *Historia animalium* (*Hist. an.*) with a survey of earlier theories on its anatomy and physiology. In *Hist. an.* III.3, 512b13–513a7, he quotes at length a passage he ascribes to Polybus, Hippocrates' son-in-law, purporting to describe the human vascular system. This passage has also come down to us independently as chapter 11 in the Hippocratic treatise *On the Nature of Man*.[1] In antiquity, *Nature of Man* consisted of 22 chapters. Galen believed that chapters 1–8 were written by Hippocrates himself, and that chapters 16–22 were a work by Polybus appended by a later compiler who also interpolated chapters 9–15, explaining what Galen thought was Aristotle's misattribution of chapter 11 to Polybus. Galen's refusal to accept the attribution of chapters 9–15 to the son-in-law and disciple

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[1] The authenticity and unity of this treatise were challenged in antiquity and continue to be debated today. J. Jouanna argues for the original unity of the entire 22 chapters in *Hippocrate: La nature de l'homme*, *Corpus Medicorum Graecorum* I.1.3 (Berlin, 1975), 19–38. I do not find the arguments for the original inclusion of chapters 14–22 convincing, but for the purposes of this paper the original scope of *Nature of Man* is irrelevant. For a possible explanation of the unity of chapters 1–13, see L. Dean-Jones, "Written Texts and the Rise of the Charlatan in Ancient Greek Medicine," in *Writing into Culture: Written Text and Cultural Practice in Ancient Greece*, ed. H. Yunis (Cambridge: Cambridge University Press, 2003), 97–121.

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of Hippocrates is due in large part to his contempt for the anatomy in chapter 11. However, since the 1892 discovery of the papyrus *Anonymus Londinensis*, which attributed theories present in *Nature of Man* to Polybus, it has been generally accepted that Polybus *is* the author of *Nature of Man*, including chapter 11. For my purposes in this chapter, the identity of the author is irrelevant (though I will use the name Polybus as a convenient way to refer to the author). I will argue that Galen's refusal to accept the attribution to Hippocrates' disciple, as well as the widespread disdain in which the passage is currently held, stem from a misunderstanding of its conception of the heart. Plato accepts this anatomical conception of the heart, but has to elaborate it into a metaphor to suit his purposes. Polybus' conception is even more antithetical to Aristotle's understanding of the heart, but, when viewed purely as a metaphor, he found it so apt that it guided his anatomical description of the organ.

To those familiar with chapter 11 of *Nature of Man* (*Nat. hom.*), the statement that anybody shared its conception of the heart will seem very puzzling, since, notoriously, the author seems to have no conception of the heart at all. In a discussion of the human vascular system, this absence is, to say the least, conspicuous. Polybus describes four pairs of vessels running from head to toe through the human body. We would have expected the heart to lie in the course of the third pair:

> αἵ δὲ τρίται φλέβες ἐκ τῶν κροτάφων διὰ τοῦ αὐχένος ὑπὸ τὰς ὠμοπλάτας, ἔπειτα συμφέρονται ἐς τὸν πλεύμονα καὶ ἀφικνέονται ἥ μὲν ἀπὸ τῶν δεξιῶν ἐς τὰ ἀριστερὰ ὑπὸ τὸν μαζὸν καὶ ἐς τὸν σπλῆνα καὶ ἐς τὸν νεφρόν, ἥ δ᾽ ἀπὸ τῶν ἀριστερῶν ἐς τὰ δεξιὰ ἐκ τοῦ πλεύμονος ὑπὸ τὸν μαζὸν καὶ ἐς τὸ ἧπαρ καὶ ἐς τὸν νεφρόν, τελευτῶσι δὲ ἐς τὸν ἀρχὸν αὗται ἀμφὸτεραι.
>
> The third (pair of) vessels run from the temples through the neck under the shoulder-blades then meet at the lung, and the vessel from the right runs to the left under the breast and on to the spleen and kidney; the vessel from the left runs to the right from the lung under the breast and on to the liver and kidney, and these both terminate at the rectum.
>
> *Nat. hom.* 11[2]

In his commentary on *Nature of Man*, Galen dismisses the whole chapter as "the dream of a drunkard" and sarcastically calls the author "a new Prometheus," remarking that his description failed to note structures that would be evident even to a blind man feeling his way through a cadaver with his fingers.[3]

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[2] Unless otherwise noted all translations are my own. The ancient Greeks viewed the lungs as a single organ. It should be noted that although the details are the same, at *Hist. an.* III.3, 512b26–32 Aristotle is not quoting *Nat. hom.* verbatim.

But Polybus was not the only aspiring physiologist to omit any reference to the heart in his vascular system. A little before his citation of the Polybus passage, Aristotle quotes an earlier description of the vascular system which also failed to make explicit mention of the heart, that of Syennesis. Syennesis describes only one pair of vessels:

> αἱ φλέβες αἱ παχεῖαι ὧδε πεφύκασιν, ἐκ τοῦ ὀφθαλμοῦ παρὰ τὴν ὀφρὺν διὰ τοῦ νώτου περὶ τὸν πλεύμονα ὑπὸ τοὺς μαστούς, ἡ μὲν ἐκ τοῦ δεξιοῦ εἰς τὰ ἀριστερά, ἡ δ᾽ ἐκ τοῦ ἀριστεροῦ εἰς τὸ δεξιόν, ἡ μὲν ἐκ τοῦ ἀριστεροῦ διὰ τοῦ ἥπατος εἰς τὸν νεφρὸν καὶ εἰς τὸν ὄρχιν, ἡ δ᾽ ἐκ τοῦ δεξιοῦ εἰς τὸν σπλῆνα καὶ νεφρὸν καὶ ὄρχιν, ἐντεῦθεν δὲ εἰς τὸ αἰδοῖον.
>
> The stout blood vessels run as follows: from the eye across the eyebrow, through the back, around the lung, under the breasts; the one from the right runs to the left, the one from the left to the right: the one from the left runs through the liver to the kidney and the testicle, the one from the right to the spleen and kidney and testicle, and from there they both run to the penis.
>
> *Hist. an.* III.2, 511b24–30[4]

The accounts share a missing heart and a crossing of the vessels, but in Polybus' account the vessels are only one of four pairs, while in Syennesis' they are the only pair. Moreover, the beginning and ending points of Syennesis' vessels are different from those of Polybus (i.e., eye to penis rather than temple to rectum), and after the chiasmus they are described in reverse order (i.e., Syenesis describes the course of the vessel through the liver before the spleen). This makes it unlikely that Polybus was simply adapting Syennesis' account.

The omission of the heart by Syennesis and Polybus is generally cited as a prime piece of evidence for the cavalier attitude of the Hippocratics to anatomy, and to the fact that they did not perform dissection.[5] But, of course,

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[3] *HNH*, M. 67.14–68.15, 75.8–11 = Kühn XV.130.4–132.6, 146.4–7.

[4] This passage is also preserved in the Hippocratic Corpus in chapter 8 of *On Bones* (*Oss.*). Again, Aristotle's version is not an exact quotation of the Hippocratic text.

[5] E.g., G. E. R. Lloyd, *Magic, Reason and Experience* (Cambridge: Cambridge University Press, 1979), 157–58; P. Manuli and M. Vegetti, *Cuore, Sangue e Cervello: Biologia e Antropologia nel Pensiero Antico* (Milan: Episteme Editrice, 1977), 52; W. D. Smith, *The Hippocratic Tradition* (Ithaca: Cornell University Press, 1979), 20; J. Jouanna, *Hippocrates*, trans. by M. B. DeBevoise (Baltimore: Johns Hopkins University Press, 1999), 310–11.

Syennesis and Polybus could not have been *unaware* of the heart and its attachments. As one modern anatomist states, it is true that when the thorax is first opened, "The visible *thisness* of the heart is not quite so clear-cut as one might imagine … and unless you already had a theory which insisted that there was a significant difference between the object you wanted to pluck out of the chest and all those pink tubes which prevented you from doing so, there would be no particular reason for labelling this 'the heart' and those things its vessels."[6] But in the early 5th century BCE, Diogenes of Apollonia had already given a systematic description of the vascular system in which he referred to the heart as a discrete structure.[7] The heart was also mentioned by other early physiologists[8] and is frequently referred to in other Hippocratic treatises earlier than or contemporary with *Nature of Man*.[9] Even outside of the medical literature, when Homer describes the death of Alkathoös at the hands of Idomeneus, he describes the butt end of a spear that had pierced Alkathoös' heart, quivering as the organ continued to beat:

> δὴ τότε γ' αὖον ἄϋσεν ἐρεικόμενος περὶ δουρί.
> δούπησεν δὲ πεσών, δόρυ δ' ἐν κραδίῃ ἐπεπήγει,
> ἥ ῥά οἱ ἀσπαίρουσα καὶ οὐρίαχον πελέμιζεν
> ἔγχεος· ἔνθα δ' ἔπειτ' ἀφίει μένος ὄβριμος Ἄρης.
>
> He cried out then, a great cry, broken, the spear in him,
> and fell, thunderously, and the spear in his heart was stuck fast
> but the heart was panting still and beating to shake the butt end
> of the spear. Then and there Ares the huge took his life away from him.
> *Iliad* 13.441–44, trans. Lattimore

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[6] J. Miller, *The Body in Question* (New York: Random House, 1978), 177.

[7] ἀπὸ δὲ τούτων καθ᾽ἅπαν τὸ σῶμα αἱ φλέβες διατείνουσιν, ἀπὸ μὲν τῆς δεξιᾶς εἰς τὰ δεξία, ἀπὸ δὲ τῆς ἀριστερᾶς εἰς τὰ ἀριστερά, μέγισται μὲν δύο εἰς τὴν καρδίαν περὶ αὐτὴν τὴν νωτιαίαν ἄκανθαν, ἕτεραι δ᾽ὀλίγον ἀνωτέρω διὰ τῶν στηθῶν ὑπὸ τὴν μασχάλην εἰς ἑκατέραν τὴν χεῖρα τὴν παρ᾽ἑαυτῇ. (*Hist. an.* III.2 512a1–4) "From these ⟨two major blood vessels⟩, vessels extend through the entire body: from the right blood vessel to the parts on the right, from the left blood vessel to the parts on the left. The two largest run to the heart near the backbone and two others run a little higher up through the chest under the armpits, each to the hand on its own side of the body." The description of the vascular system in chapter six of the Hippocratic treatise *On the Sacred Disease* is very close to this.

[8] E.g., Philol. frag. 13, Emp. frag. 105.

[9] E.g., *Aphorisms*, *Epidemics* I & III, *On the Sacred Disease*, *Places in Man*. None of these treatises accords the heart any importance.

More mundanely, butchers regularly had to detach the heart from the major blood vessels for sacrificial and cuisinary purposes.[10] It therefore seems improbable that the omission of a reference to the heart in Polybus' sketch of the vascular system is due to sheer ignorance of its existence and attachment to the blood vessels.

The usual explanation given or implied for the oversight is that, as a practicing physician, Polybus was concerned primarily to illustrate the basis for the therapeutic value of venesection, i.e., that different parts of the body were connected by blood vessels, so that drawing off blood from the back of the knee could cure, say, a condition in the kidneys, so he forgot the heart because it was not relevant for this purpose. This will always remain a possible explanation for the omission. But it seems unlikely that a physician would dash off a description of the vascular system once for all, and not insert the heart on later reflection. It also seems unlikely that two different writers would inadvertently make the same glaring omission, or that, if the later writer were using the model of the earlier, he would not correct it. Paola Manuli and Mario Vegetti attempted to explain the lacuna by arguing that it was the culmination of the encephalocentric argument, that the brain was the *hegemonikon*, or controlling agent, of the body against the cardiocentric theories.[11] In other words, as encephalocentrists, Syennesis and Polybus downplayed the role of the heart to the point of simply ignoring it. But, although clearly neither author accords the heart much importance, simply pretending it does not exist is not a strong rhetorical move, especially as neither author is concerned to make an explicit argument for encephalocentrism in these treatises.

The other shared element of Syennesis' and Polybus' models is the crossing of the vessels in the chest. Harris notes that the "crossing place" of the vessels in Syennesis' account is in the area of the heart and wonders whether this might not reflect the crossing of the innominate artery and the left innominate vein seen through a gaping wound in battle.[12] Dr. Julius Rocca has commented to me that, "The wound would have to be massive to expose these structures, and in any case, their pristine anatomy would be obscured by the severe trauma." And if the crossing of the innominate artery and vein is what corresponds to "the crossing of the vessels," and the authors arrived at their models independently through chance observation, it would be strange for both of them to bother to note a relatively obscure anatomical feature and fail to mention the heart itself. And, again, if Polybus had simply adapted Syennesis' model for his third pair of vessels we would expect him to repair the omission of a well-known organ. When discussing the Polybus passage, Harris comments, "To attempt to identify ⟨the crossing of the vessels⟩ as the pulmonary arteries or pulmonary veins is obviously futile, but the two big crossing vessels seem to fit fairly well as a first approximation to the vena cava and the aorta."[13] He still, though, does not see this as a reference to the heart itself, continuing to remark, "There is no mention of the heart at all."[14]

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[10] See, e.g., Aristotle *Parts of Animals* (*Part. an.*) III.4, 667b 1–3. Diogenes Laertius tells us Pythagoras specifically forbade the eating of hearts (D.L. 8.19), so somebody was cooking them.

[11] Manuli and Vegetti, *Cuore, Sangue e Cervello*, 40–53.

[12] C. R. S. Harris, *The Heart and the Vascular System in Ancient Greek Medicine* (Oxford: Clarendon Press, 1973), 21.

I will argue (i) that the crossing of the vessels is the heart itself, (ii) that understanding cardiac structure in this way requires some anatomical expertise, (iii) that Plato acknowledged this anatomical expertise even though it presented difficulties for his physiological theories, and (iv) that Aristotle's description of the heart reflects the understanding of the heart as crossed vessels, even though his insistence that the heart is the *source* of the vessels precludes this possibility.

It is important to note that, although Aristotle is roundly cardiocentrist, he does not criticize Syennesis and Polybus for omitting any reference to the heart in their discussion of the vascular system. Rather, he faults them (along with Diogenes of Apollonia who *does* mention the heart) for locating the source of the vascular system in the head rather than the heart:

> τὰ μὲν οὖν ὑπὸ τῶν ἄλλων εἰρημένα σχεδὸν ταῦτά ἐστιν· εἰσὶ δὲ καὶ τῶν περὶ φύσιν οἳ τοιαύτην μὲν οὐκ ἐπραγματεύθησαν **ἀκριβολογίαν** περὶ τὰς φλέβας, πάντες δ' ὁμοίως τὴν ἀρχὴν αὐτῶν ἐκ τῆς κεφαλῆς καὶ τοῦ ἐγκεφάλου ποιοῦσι, λέγοντες οὐ καλῶς.
>
> These passages (i.e., the quotations from Polybus, Syennesis and Diogenes) are basically what has been said by others ⟨on the topic⟩. There are also some of those who write about nature who have not treated the subject of the blood vessels with such **precision**, but they similarly all place their origin in the head and brain, though they are mistaken in this theory.
>
> *Hist. an.* III.3, 513a8–12

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[13] *Ibid.*, 46.

[14] *Ibid.* Phillips wonders whether the crossing of the vessels does not reflect the observation that, when struck on the right side of the head, an individual manifests neurological damage on the left side and vice versa. E. D. Phillips, *Greek Medicine* (London: Thames and Hudson, 1973), 43.

Aristotle says this mistake arose from the fact that in living animals the vessels are hidden in the interior of the body, and in dead animals the vessels collapse through desanguification, making it difficult to observe the sources of the blood vessels (*Hist. an.* III.2, 511b13–24). This goes some way towards excusing a failure to recognize the nature of the blood vessels, but as was noted earlier, in the 5th century BCE the presence of the heart within the thorax and its connection to the major vessels was already well known—in dead animals the *heart* does not collapse to the point of being indiscernible. Aristotle is not using desanguification to explain a lack of reference to the *heart*. He does not try to explain or even draw attention to this omission. Moreover, if he believed Syennesis and Polybus had completely overlooked the heart, it is unlikely he would say, as he does, that there were others writing on the subject with less precision (ἀκριβολογία). I believe Aristotle took the description of the crossing of the vessels in Syennesis and Polybus to be a valid way to refer to the heart itself. It should be noted that Diogenes of Apollonia, who does mention the heart, does not mention any chiasmus of vessels in the chest.

That Aristotle would acquiesce in the reduction of the heart to a crossing of blood vessels needs further explanation. It is hard to overemphasize the importance of the heart in Aristotle's physiology. In his biological theory, it is the first organ formed in the embryo and the seat of the *archê* (ἀρχή), the principle that directs all further development, including that of the blood vessels of which it is the *source*:

> αὗται δ᾽ἔχουσι τὰς ἀρχὰς ἀπὸ τῆς καρδίας· διὰ μὲν γὰρ τῶν ἄλλων σπλάγχνων, ᾗ τυγχάνουσι τείνουσαι, ὅλαι δι᾽ αὐτῶν διέρχονται σωζόμεναι καὶ οὖσαι φλέβες, ἡ δὲ καρδία ὥσπερ μόριον αὐτῶν ἐστι.
>
> These (i.e., the two major blood vessels) have their origin in the heart. This is clear because, where they stretch through the other viscera, they go through them, keeping themselves whole and retaining the nature of blood vessels, but the heart is like a part of them.
>
> *Hist. an.* III.3, 513a22–26

Here, he argues that the heart's relationship to the blood vessels differs from that of other organs. The vessels *do not pass through* the heart. In *Parts of Animals* (*Part. an.*) he is even clearer that the blood vessels arise from the heart and do not pass through it:

> ἀρχὴν δὲ τούτων ἀναγκαῖον εἶναι μίαν· ὅπου γὰρ ἐνδέχεται, μίαν βέλτιον ἢ πολλάς. ἡ δὲ καρδία τῶν φλεβῶν ἀρχή· **φαίνονται γὰρ ἐκ ταύτης οὖσαι καὶ οὐ διὰ ταύτης.**
>
> And the source of these ⟨blood vessels⟩ has to be single, for wherever it is possible one is better than many. And the heart is the source of the blood vessels, **for they obviously arise from the heart and do not go through it.**
>
> *Part. an.* III.4, 665b14–17

He repeats this observation twice more in *Part. an.*: "no blood vessel passes through the heart" (διὰ δὲ τῆς καρδίας οὐ διατείνει φλέψ, 665b32–33) and "Again, a blood vessel stretches through it (i.e., the liver), but no blood vessel runs through the heart" (ἔτι δὲ τείνει δι᾽αὐτοῦ φλέψ, δι᾽ἐκείνης δ᾽οὐδεμία, 666a31–32).

In *Hist. an.* III.3, after his statement that the heart is "like" (ὥσπερ) part of the blood vessels, Aristotle proceeds to describe it as having three cavities:

> ἔχουσι δ᾽ αἱ καρδίαι πᾶσαι μὲν κοιλίας[15] ἐν αὑταῖς, ἀλλ᾽ αἱ μὲν τῶν σφόδρα μικρῶν ζῴων μόλις φανερὰν τὴν μεγίστην ἔχουσι, τὰ δὲ μέσα τῷ μεγέθει τῶν ζῴων καὶ τὴν ἑτέραν, τὰ δὲ μέγιστα πάσας τὰς τρεῖς. ἔστι δὲ τῆς καρδίας τὸ ὀξὺ ἐχούσης εἰς τὸ πρόσθεν, καθάπερ εἴρηται πρότερον, ἡ μεγίστη μὲν κοιλία ἐν τοῖς δεξιοῖς καὶ ἀνωτάτω αὐτῆς, ἡ δ᾽ ἐλαχίστη ἐν τοῖς ἀριστεροῖς, ἡ δὲ μέση μεγέθει τούτων ἐν τῷ μέσῳ ἀμφοῖν· ἀμφότεραι δὲ αἱ δύο πολλῷ ἐλάττους εἰσὶ τῆς μεγίστης. συντέτρηνται μέντοι πᾶσαι αὗται πρὸς τὸν πλεύμονα, ἀλλ᾽ ἄδηλοι διὰ σμικρότητα τῶν πόρων πλὴν μιᾶς.
>
> ἡ μὲν οὖν μεγάλη φλὲψ ἐκ τῆς μεγίστης ἤρτηται κοιλίας τῆς ἄνω καὶ ἐν τοῖς δεξιοῖς, εἶτα διὰ τοῦ κοίλου τοῦ **μικροῦ** [mss. μέσου] **τείνασα γίνεται**[16]

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[15] Balme prefers the mss. κοιλίαν, probably because at *Part. an.* III.4, 666b22–35 Aristotle states that hearts are one-, two- or three-chambered according to the size of the animal, but the remainder of the sentence here requires the plural, and Aristotle also states that all animal hearts have three cavities at *Hist. an.* I.17, 496a4 & 20. Michael Scot translated *ventriculos* here.

[16] Reading τείνασα γίνεται for γίνεται. γίνεται is the reading of the β and γ family of mss., τείνεται of the α family. In his edition, Balme prefers the readings of the β and γ families here, but in his introduction states that "there is no 'best' MS or family," Balme 2002, 35. Michael Scot translated *transit*. τείνεται is preferred by Schneider and Bekker. τείνασα γίγνεται is the conjecture of Dittmeyer accepted by Peck. This conjecture makes clear the meaning of both of the other two readings and accounts for the discrepancy in the mss. I also read μικροῦ for μέσου. I explain this reading below.

> πάλιν φλέψ, ὡς οὔσης τῆς κοιλίας μορίου τῆς φλεβὸς ἐν ᾧ λιμνάζει τὸ αἷμα. ἡ δ' ἀορτὴ ἀπὸ τῆς μέσης· πλὴν οὐχ οὕτως ἀλλὰ κατὰ στενοτέραν σύριγγα πολλῷ κοινωνεῖ. καὶ **ἡ μὲν φλὲψ διὰ τῆς καρδίας, εἰς δὲ τὴν ἀορτὴν ἀπὸ τῆς καρδίας τείνει**. καὶ ἔστιν ἡ μὲν μεγάλη φλὲψ ὑμενώδης καὶ δερματώδης, ἡ δ' ἀορτὴ στενοτέρα μὲν ταύτης, σφόδρα δὲ νευρώδης· καὶ ἀποτεινομένη πόρρω πρός τε τὴν κεφαλὴν καὶ πρὸς τὰ κάτω μόρια στενή τε γίνεται καὶ νευρώδης πάμπαν.
>
> All hearts have cavities in them, but in extremely small animals even the largest of these are hardly visible, in medium-sized animals the second largest can be seen, and in the largest animals all three. As was stated previously, the point of the heart lies to the front, and the largest cavity sits in the right and upper part of it. The smallest cavity lies to the left, and the medium-sized cavity in the middle of these two. Both the latter two cavities are much smaller than the largest. However, they all connect with the lung by passages, though all but one of these is indiscernible because of their smallness.
>
> The great vessel is attached to the largest cavity, the one that is up and to the right, then, **stretching through the small** [mss. middle] **cavity** as if the cavity were a part of the vessel in which the blood pools, it becomes a blood vessel again. The aorta is attached to the middle cavity, except not in the same arrangement. Rather it communicates through a much narrower passage. **And the blood vessel through the heart stretches into the aorta from the heart**. The great vessel is membranous and skin-like, while the aorta is narrower than this and very sinewy. And tapering off further towards the head and lower parts of the body, it becomes extremely narrow and sinewy.
>
> *Hist. an.* III.3, 513a27–b11

The largest cavity is on the right and highest up, the smallest is on the left, and the medium-sized one is between the two. The largest (which Aristotle insists is much the largest[17]) is generally identified with the right ventricle, on the assumption that the great vessel (μεγάλη φλέψ) refers to *both* the vena cava *and* the right atrium, which explains why Aristotle describes the heart as having only three cavities.[18] The left ventricle is bigger than the left atrium and should therefore be denoted as the medium-sized and middle cavity. In

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[17] See *Respiration* 20, 480a8; *Generation of Animals* (*Gen. an.*) II.1 & 4, 735a24–26 & 740a2–9.

[18] See J. R. Shaw, "Models for Cardiac Structure and Function in Aristotle," *Journal of the History of Biology* 5 (1972): 375. For a summary of all attempts at decoding Aristotle's description of the heart before 1972, see Harris, *The Heart and the Vascular System*, 121–34.

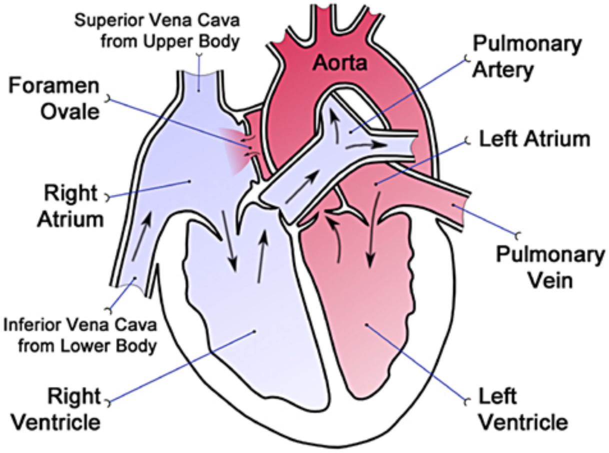

FIGURE 4.1 *Diagram of heart with open foramen ovale. Red area indicates oxygenated blood from the lungs to the heart, while blue area indicates deoxygenated blood from the rest of the body to the heart. Labels added to modify original image of "Atrial septal defect"* (ASD)*, whereby the foramen ovale fails to close after birth. Original image by Manco Capac* (*Own work*) [CC BY-SA *3.0* (*http://creativecommons.org/licenses/by-sa/3.0*)], *via Wikimedia Commons.*

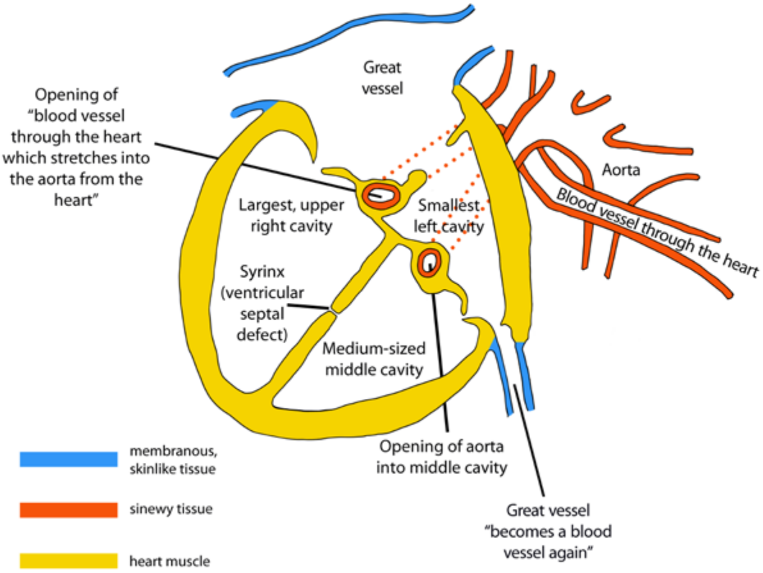

FIGURE 4.2 *Aristotle's conception of the heart.*[19]

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19 I am grateful to Beth Chichester for her invaluable help in producing this image.

addition, although it is to the left of the largest cavity, if Aristotle meant to refer to it as the cavity on the left, it is hard to see how the left atrium, which is further to the left, could then be described as lying between the two. The third and smallest cavity on the left would then be the left atrium.[20]

If we retain the mss. μέσου (i.e., “stretching through the *middle* cavity”) at 513b3 above, this smallest cavity would not be further referred to in the description and would not be connected to any blood vessel leaving the heart, nor would any connection be mentioned between it and either of the other two cavities. It would be left with no purpose. If the term used to refer to its smallness here was μικροῦ rather than ἐλαχίστου, it would have been easy for a copyist to inadvertently substitute μέσου in a passage that abounds with references to large, small and middle-sized animals, and large, small and middle-sized cavities, to say nothing of right, left and middle cavities. The fact that μεσοῦ is the reading of all manuscripts simply means it was an error made by a very early copyist. (In fact, I would argue it is the sort of mistake that could be made by an author.) I therefore propose reading μικροῦ (i.e., “stretching through the *small* cavity”) in place of μέσου. If we accept this reading it not only gives the smallest cavity a function in the heart, but the resulting description also (i) makes considerable sense as a description of the human fetal heart, (ii) enables us to retain εἰς δὲ τὴν ἀορτὴν ἀπὸ τῆς καρδίας at 513b7—which is in all the mss. but generally excised or emended by editors and translators—and (iii) explains why Aristotle does not criticize Polybus and Syennesis for omitting the heart from their vascular system.[21]

There are several indications that human fetuses were among Aristotle’s dissected specimens. He describes humans as having kidneys made up of a number of small kidneys, like those of the ox.[22] Peck comments, “This is not true of the normal adult, but it is true of the foetus.” Aristotle also claims that in some humans the gall-bladder is easily seen, while it is missing in others.[23] Again, Peck comments, “In man, its absence is rare; and Aristotle’s statement may well be derived from his observation of aborted embryos, in which the gall-bladder develops somewhat late." J. R. Shaw draws attention to characteristics of the human fetal heart that explain elements of Aristotle's understanding of the organ. He remarks that, although Aristotle could have palpated a human adult to learn that the human heart is inclined more to the left and higher up than other animals, this position of the heart would be more obvious in a fetus.[24] He also draws attention to Aristotle's statement that the heart has an articulation, *diarthrôsis* (διάρθρωσις), which resembles the sutures of a skull.[25] Shaw identifies this with the coronary groove which is noticeable on the surface of the fetal heart around the base of the atria.[26] It is harder to discern in adults, due to the presence of epicardial fat. Despite these observations, Shaw's overall conclusion was that Aristotle restricted himself to the surface anatomy of the fetal heart, and did not observe the internal structure. His main reason for saying this is that Aristotle "is silent about an outstanding feature of fetal cardiac anatomy, the foramen ovale."[27]

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[20] Harris disputes this identification on the basis that later tradition took both atria to be part of the blood vessels, but this seems to me to be rather a weak argument. Harris, *The Heart and the Vascular System*, 128.

[21] Here I would cite Haupt as quoted by Housman, “If the sense requires it, I am prepared to write *Constantinopolitanus* where the MSS. have the monosyllabic interjection *o*.” A. E. Housman, “The Application of Thought to Textual Criticism,” *Proceedings of the Classical Association* 18 (1922): 77. I am grateful to Jim Hankinson for this reference.

[22] *Part. an.* III.9, 671b6–8.

[23] *Part. an.* IV.2, 676b32–33.

But it is hard to imagine that, having examined the exterior of a fetal heart, Aristotle would not have taken the step of dissecting it, and recognizing that Aristotle was describing the internal anatomy of a human fetal heart makes best sense of his description of cardiac anatomy. The great vessel, which comprises the vena cava and right atrium, is attached to the largest cavity (right ventricle), with no mention of the tricuspid valve (between right atrium and right ventricle). In a fetal heart, Aristotle would also have seen the right atrium portion of the great vessel connect directly to the smallest cavity (left atrium) through the foramen ovale, a yet-unclosed passage allowing the free flow of blood between right and left atria. In contrast to the sinewy nature of the aorta, the pulmonary vein (i.e., the blood vessel leading into the left atrium from the lungs)[28] has the same membranous and skinlike appearance as the vena cava, and so Aristotle describes the pulmonary vein as a continuation of the great vessel (vena cava + right atrium), with the small cavity (left atrium) between these two vessels considered "a part of the [continuous] vessel in which the blood pools." Contrary to his reiterated statements in *Part. an.*, therefore, Aristotle says the great vessel has *passed through* (τείνεται) the heart.

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[24] Shaw, "Models for Cardiac Structure and Function in Aristotle," 367–68.

[25] *Part. an.* III.4, 667a6–7.

[26] Shaw, "Models for Cardiac Structure and Function in Aristotle," 368–69.

[27] *Ibid.*, 369. The foramen ovale is an opening between the atria of the fetal heart that does not close over until birth.

[28] Aristotle refers to a single pulmonary vein. This may be because he saw only one, or because he viewed the pair as a unity. He refers to the lungs (e.g., *Hist. an.* II.17, 508a32, πνεύμων) and the ovaries (*Hist. an.* VIII(IX).49, 632a22, καπρία) with singular nouns.

As we might expect, Aristotle next states that the aorta is attached to the middle cavity (i.e., left ventricle), but he goes on to say, “except not in the same arrangement. Rather it communicates through a much narrower passage” (πλὴν οὐχ οὕτως ἀλλὰ κατὰ στενοτέραν σύριγγα πολλῷ κοινωνεῖ, 513b5–6). Editors and translators have generally assumed that the communication discussed here is that between the aorta and the left ventricle, in parallel to the statement “The great vessel is attached to the largest cavity, the one that is up and to the right” (ἡ μὲν οὖν μεγάλη φλὲψ ἐκ τῆς μεγίστης ἤρτηται κοίλιας τῆς ἄνω καὶ ἐν τοῖς δεξιοῖς). But Aristotle does not discuss the *nature* of the attachment between the great vessel and the largest cavity; there is nothing for οὕτως (“in the same arrangement”) to refer to in that case. The nature of an attachment he *has* just discussed is the way in which the great vessel connects with the blood vessel on the other side of the heart, through the cavity of the left atrium. The width of this connection is suggested by likening the left atrium to a part of the vessel in which blood “pools” (λιμνάζει). If Aristotle were simply discussing the connection of the aorta to the left ventricle at 513b5–6, the “much narrower tube” through which the two communicate, would have to be a reference to the semi-lunar aortic valve, and the comparison would be to the tricuspid valve lying between the great vessel and the largest cavity (right ventricle), even though Aristotle makes no mention of the valves of the heart anywhere else in his writings.[29] Moreover, the term σύριγξ (translated here as “passage”) is not suitable for a valve; σύριγξ is the term used to refer to Pan-pipes, the nave of a wheel, bronchial passages and other ducts in the body, and basically depicts a hollow structure of some length, not simply an opening. Here, then, Aristotle is not simply describing how the aorta is attached to the left ventricle, but how it becomes part of the heart (κοινωνεῖ implies much greater integration with the heart than ἤρτηται) like the great vessel does, but through a narrower connection than the left atrium.

One of the reasons Aristotle thought of the pulmonary vein as a continuation of the great vessel, I argued, was that they have the same membranous and skinlike appearance, whereas the aorta is sinewy.[30] Dismissing Huxley’s suggestion that Aristotle's description of the heart could be explained if he believed the great vessel emerged from the heart as the pulmonary artery, Harris says, "It seems to me much more likely that the pulmonary artery and the aorta, both alike empty of blood in the dead subject and so similar in texture and appearance to one another, and so plainly different from the veins, were together spoken of as 'the aorta,' in other words as the arterial system: though this hypothesis will force us to admit that Aristotle did not detect the simple fact of these two vessels communicating with opposite sides of the heart."[31] I argue that Aristotle did recognize the same arterial structure in the pulmonary artery and the aorta, and believed they connected via the heart as the great vessel and pulmonary vein did. At the same time, he did not miss the elementary observation that they were attached to different sides of the heart. Aristotle must have either observed or hypothesized a communication between the two ventricles, which functioned to connect them just as the left atrium connected the venous vessels, only on a much narrower scale.

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[29] Shaw translates “The aorta comes from the middle cavity, but it is a much narrower tube (σύριγγα),” as if σύριγγα were in the nominative and not governed by the preposition κατά (“through”). Shaw, “Models for Cardiac Structure and Function in Aristotle,” 376. The earliest mention of valves in the heart in Greek medicine is to the semi-lunar valves in the Hippocratic treatise *On the Heart*, which dates to the first quarter of the third century, 30–40 years after Aristotle’s death.

[30] Although Aristotle recognized the structural difference between veins and arteries he dose not seem to have connected this to a difference in function. He uses the term “vessels,” *phlebes*, φλέβες, to refer to veins and arteries indiscriminately.

The pulmonary artery connects to the right ventricle of the heart, and the aorta to the left, but in some fetal and neonatal hearts, the ventricles communicate through the ventricular septal defect. This opening between the ventricles usually closes very early in fetal development, but a failure of the opening to close is the most common cardiac malformation in neonates today, and one that Aristotle could possibly have seen in a fetal heart. The ventricular septum has some width, and the size of the defect can vary, sometimes being as small as a pinhole. In such a case, it would be a suitable structure to be designated as a σύριγξ. If Aristotle had not actually seen a ventricular septal defect, he may simply have assumed such a connection between the largest and middle cavities of his heart—one that, like the ἄδηλοι πόροι between heart and lung mentioned in 513a37–b1, was too small to be seen.[32]

According to this interpretation, the statement "the aorta is attached to the middle cavity" (ἡ δ' ἀορτὴ ἀπὸ τῆς μέσης) might have been logically resumed by a clause such as "then it stretches through the largest cavity" (εἶτα διὰ τοῦ κοίλου τοῦ μεγίστου τείνεται). It is not unreasonable to assume that such a clause could have dropped out through haplography, or been deliberately excised by a copyist who believed it had entered the text in error. In the absence of an understanding of the fetal heart, the description is very difficult to follow, and the phrase could easily have been viewed as a mistake. I think it unlikely that Aristotle was writing so telegraphically here that he omitted this detail himself, but I would not place this beyond the bounds of possibility. Without such a clause, or the implicit understanding of such a clause, the description makes little sense. With it, we can make sense of the following sentence: “And the blood vessel through the heart stretches into the aorta from the heart.” We end up with a schematic description of the fetal heart, which coheres with what Aristotle says elsewhere about the relationship of the largest and middle cavities of the heart.

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[31] Harris, *The Heart and the Vascular System*, 130.

[32] Dr. Julius Rocca (personal communication) informs me that ventricular septal defect is the most common cardiac malformation, affecting 12: 10,000 births today. Babies with such a "hole in the heart" would be likely to die soon after birth and would perhaps have been available for dissection. Galen's cardio-vascular system asserted that blood passed directly from one ventricle to another through perforations in the ventricular septum and Harris argues that these do, in some sense, exist, Harris, *The Heart and the Vascular System*, 334.

That Aristotle believed the left ventricle communicated directly with both the left atrium and the right ventricle is supported in two other passages, where he describes the middle cavity (left ventricle) as common (κοινή) to the other two. In *Part. an.* he says:

> ἔτι δὲ βέλτιον τρεῖς εἶναι τὰς κοιλίας, ὅπως ᾖ μία ἀρχὴ κοινή· τὸ δὲ μέσον καὶ περιττὸν ἀρχή.
>
> But it is better still for there to be three cavities, so that there is a single shared source, and the source is the middle and third cavity.
>
> *Part. an.* III.4, 666b33–34

The same commonality is described in *On Sleep and Waking*:

> παντὸς δὲ τοῦ αἵματος ἀρχή, ὥσπερ εἴρηται καὶ ἐνταῦθα καὶ ἐν ἄλλοις, ἡ καρδία. τῶν δ’ ἐν τῇ καρδίᾳ ἑκατέρας τῆς θαλάμης κοινὴ ἡ μέση· ἐκείνων δ’ ἑκατέρα δέχεται ἐξ ἑκατέρας τῆς φλεβός, τῆς τε μεγάλης καλουμένης καὶ τῆς ἀορτῆς.
>
> The heart is the source of all blood, as has been stated both here and in other treatises. The middle chamber communicates with each of the other two chambers in the heart, and each of these receives blood from each vessel, both the so-called great vessel and the aorta.[33]
>
> *Somn. vig.* 3, 458a15–19

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[33] W. S. Hett, *Aristotle: On the Soul, Parva Naturalia, On Breath.* (Cambridge, Mass.: Harvard University Press, 1975), 343, translates δέχεται ἐξ ἑκατέρας τῆς φλεβός as “receives from one of the blood vessels,” though the Greek term ἑκατέρας means “each.” Lloyd paraphrases that each compartment “draws from its own vessel,” which also misrepresents the Greek.

If Aristotle is describing the fetal heart here, the smallest cavity (left atrium) communicates with the middle (left ventricle) through the bicuspid valve, and so receives blood from the aorta (note that receiving blood from the aorta does not entail being directly connected to it), but it also receives blood from the great vessel (vena cava + right atrium) through the foramen ovale. The largest cavity (right ventricle) receives blood directly from the great vessel; the only way it could be said to receive blood from the aorta is if there were some communication between the left and right ventricles. This has to be the observed or imagined ventricular septal defect.[34]

If the statement "it communicates through a much narrower passage" (κατὰ στενοτέραν σύριγγα πολλῷ κοινωνεῖ) at 513b6 refers to a connection between the aorta and the pulmonary artery through left and right ventricles, and not the aorta and the middle cavity (both on the heart's left side), the sentence "And the blood vessel passes through the heart and reaches into the aorta from the heart" (καὶ ἡ μὲν φλὲψ διὰ τῆς καρδίας, εἰς δὲ τὴν ἀορτὴν ἀπὸ τῆς καρδίας τείνει) at 513b7–8 would make perfect sense. Just as the great vessel (vena cava + right atrium) passes through the heart and reappears as the pulmonary vein on the left side, the blood vessel in 513b7–8 (i.e., pulmonary artery) enters the ventricles, passes through the heart and reappears as the recognizably sinewy aorta on the other side. All editors who take the description to refer simply to the connection of the aorta to the left ventricle are forced to obelize the words

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G. E. R. Lloyd, "The Empirical Basis of the Physiology of the *Parva Naturalia*," in *Methods and Problems in Greek Science* (Cambridge: Cambridge University Press, 1991), 231. If each of the other cavities were receiving blood from a separate source, there would be no need for a shared middle cavity. Note that the "blood" which the heart is receiving is not fully concocted blood in its final form; rather it is nourishment from the stomach on its way to becoming blood. *Somn.* vig. 3, 456b4–6 says that after food has entered the stomach the nourishment evaporates into the blood vessels, and "changing there becomes blood and makes its way to the starting-point (i.e., heart)," ἐκεῖ δὲ μεταβάλλουσα ἐξαιματοῦται καὶ πορεύεται ἐπὶ τὴν ἀρχήν. But at *Part. an.* III.4, 666a6–7 Aristotle remarks that the blood vessels carry blood away from the heart, not to it. Shaw notes that in Aristotle's physiology "Fluids apparently had to go both ways in the same blood vessels at the same time." Shaw, "Models for Cardiac Structure and Function in Aristotle," 387. This may be acknowledged in Aristotle's comment at *Part. an.* III.5, 667b23 that the blood vessels εἰς μίαν ἀρχὴν συντελεῖν καὶ ἀπὸ μιᾶς, "lead toward one source and ⟨come from⟩ one source."

[34] Ogle believed that in this passage Aristotle was stating that the left atrium was the source of the aorta, and scholars have generally accepted this interpretation. See Shaw, "Models for Cardiac Structure and Function in Aristotle," 380; Harris, *The Heart and the Vascular System*, 175; Lloyd, "The Empirical Basis of the Physiology of the *Parva Naturalia*," 231.

“into the aorta from the heart” (εἰς δὲ τὴν ἀορτὴν ἀπὸ τῆς καρδίας), even though they are present in every manuscript.

It is true that, in one instance, Aristotle uses the term “passage” (*poros*, πόρος) rather than “blood vessel” to refer to the passageways between heart and lung, i.e., the pulmonary artery and vein:

> φέρουσι δὲ καὶ εἰς τὸν πλεύμονα πόροι ἀπὸ τῆς καρδίας, καὶ σχίζονται τὸν αὐτὸν τρόπον ὅνπερ ἡ ἀρτηρία, κατὰ πάντα τὸν πλεύμονα παρακολουθοῦντες τοῖς ἀπὸ τῆς ἀρτηρίας. ἐπάνω δ’ εἰσὶν οἱ ἀπὸ τῆς καρδίας· πόρος δ’ οὐδείς ἐστι κοινός, ἀλλὰ διὰ τὴν σύναψιν δέχονται τὸ πνεῦμα καὶ τῇ καρδίᾳ διαπέμπουσιν· φέρει γὰρ ὁ μὲν εἰς τὸ δεξιὸν κοῖλον τῶν πόρων, ὁ δ’ εἰς τὸ ἀριστερόν.
>
> Passages also run into the lung from the heart, and they divide into two in the same way as the windpipe, and through the whole lung they run alongside the passages that come from the windpipe. Those from the heart are uppermost. There is no common passage, but through their contact they receive the breath and carry it to the heart; one passage ⟨pulmonary artery⟩ leads to the right cavity and the other ⟨pulmonary vein⟩ to the left.[35]
>
> *Hist. an.* I.17, 496a27–33

It could be argued that, by referring to the pulmonary vessels as πόροι rather than as φλεβές, Aristotle means to differentiate them from the great vessel and the aorta. But in this passage the focus is on the vessels’ function as conveyors of *pneuma* rather than blood. In the treatise *On Respiration*, when describing the flow of air to *the heart* from *the lungs*, Aristotle refers to the passages as “channels” (*syntreses*, σύντρησες).[36] But these passages also have to carry blood to *the lungs* from *the heart*. At *Gen. an.* II.6, 743b35–744b4, Aristotle describes *poroi* from the nose and ears, which enable the perception of smells and sounds, because they are full of *pneuma*. He says they terminate in small blood vessels (*phlebia*, φλέβια), which stretch ultimately to the heart. Similarly at *Part. an.* II.10, 656b16–18, he says the *poroi* from the eyes run to the *phlebes* round the brain. So while the pulmonary vessels could be *poroi* when leaving the lungs, they could be referred to as *phlebes* when they reach the heart.

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[35] In the lines immediately preceding this passage the text says that all the cavities connect with the lung, but the passage is very confusing and probably corrupt. At *Hist. an.* III.3, 513a35–36, Aristotle again states that all three cavities connect with the lung, although all the connecting passages bar one are obscure because of their smallness. The one that is most easily seen must be the pulmonary artery. The pulmonary veins are smaller than this, but can usually be seen, as the end of the quoted passage shows. On the basis of these connections Aristotle seems simply to infer a *poros* connecting the lung to the middle cavity.

[36] *Resp.* 16, 478a25.

In *Part. an.* Aristotle talks of only two vessels (i.e., the great vessel and the aorta) rather than four, as the origin of all other blood vessels, and as carrying blood from the heart to the rest of the body, including the lung.[37] This can be explained, if he thinks of the pulmonary vein and pulmonary artery as being part of the great vessel and aorta respectively. As we have seen, in *Part. an.* III.4, Aristotle states categorically three times that blood vessels do not "pass through" (τείνει) the heart.[38] Clearly, when he uses the terms τείνασα and τείνει in *Hist. an.* III.3, he does not see the vessels as retaining their tubular form as they do when they pass through, e.g., the liver.[39] Rather, the great vessel and the aorta become the heart, as if the cavities were part of them. At *Hist. an.* III.3, 513a24, Aristotle says "the heart is as it were a part of them (i.e., the blood vessels)" (ἡ δὲ καρδία ὥσπερ μόριον αὐτῶν ἐστι). Of course, this is just a manner of speaking; Aristotle never thinks the blood vessels are the source of the heart, rather than vice versa. However, he does not qualify his use of the verb "to stretch through" (τείνειν) with a word such as ὥσπερ, and the result of this imagery is that the heart appears to be created when the great vessel and the aorta cross paths.[40]

Aristotle's description of the heart as a sort of junction box, so at odds with his belief that the heart is the principle organ (*archê*, ἀρχή) of the body, follows upon his quotations from Polybus and Syennesis, in which the earlier authors make no mention of the heart, but do refer to a crossing of the major blood vessels in the chest. Aristotle makes no criticism of their cardiac omission, and instead refers to their "precision" (ἀκριβολογία). Like Aristotle, the Hippocratics used the term φλέβες to refer to both veins and arteries, but unlike Aristotle they are thought not to have differentiated between arterial and venous structure.[41] Since Syennesis and Polybus saw the heart as a crossing of the blood vessels, it seems that they too recognized a difference in structure between the two types of blood vessel, and saw the vessels' disappearance into one side of the heart and their emergence from the other as a simple crossing over without any further consideration of the structure of the heart itself. In 5th century BCE Greece, the heart was an identified organ within the thorax, even among laymen. To have been able to analyze it as "the crossing of the vessels" actually required some observation that went beyond common knowledge. In fact, for authors who believed that blood vessels start in the head and continue down the body, it would have been very difficult to account for the presence of a discrete organ in the middle of them. Describing the lump as a crossing of the vessels explains this presence, which is why Aristotle chastises them for the source of the blood vessels, rather than the omission of the heart. The models of Syennesis and Polybus are not simply the result of a massive oversight or totally arbitrary ideology. Paradoxically, the omission of the heart from Polybus' vascular system indicates that he was paying closer attention to anatomy than Galen or modern scholars have given him credit for.

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[37] *Part. an.* III.4, 666b26–28; 5, 667b20–21 & 32.

[38] *Part. an.* III.4, 665b16, 32, 666a31. See also *Resp.* 8, 474b8.

[39] Shaw translates διὰ τοῦ κοίλου τοῦ μέσου (which is misprinted as μέσον) as "through the middle of the cavity" as if μέσου took the predicate rather than the attributive position and distinguished the blood vessel from the cardiac cavity. Shaw, "Models for Cardiac Structure and Function in Aristotle," 376. This cannot be correct.

[40] If Aristotle had dissected an adult heart in which neither the atria nor the ventricles communicated, he would not have connected the great vessel to the pulmonary vein, or the aorta to the pulmonary artery at all.

[41] Harris, *The Heart and the Vascular System*, 83–84.

The fact that neither Syennesis nor Polybus bother to explain that the crossing of the vessels constitutes what is generally known as the heart suggests that they may not, in fact, have been the originators of the observation. Plato's metaphor for the heart as the "knot of the veins" (ἅμμα τῶν φλεβῶν)[42] clearly refers to this conception, so it was understood outside of strictly medical circles by the 4th century BCE. But Plato needed the heart to be a discrete structure to act as the somatic residence for the spirited part of the soul, the *thumos* (θυμός), just as the brain acted as the site for the intellect, and the stomach for the appetites. The conception of the heart as a mere crossing of blood vessels, then, is one that he would have avoided if he could. Using the metaphor of a "knot of the veins" added to the heart's *thisness*, while still allowing him to demonstrate his awareness of current anatomical knowledge. A knot is a complicated structure that takes on its own characteristics, and can be easily distinguished from the elements that come together to make the knot.

For Aristotle, the concept of the vessels "crossing over" or "passing through" the heart was itself a metaphor, albeit one that he could extend to help him describe the internal structure of the organ that he observed when he dissected a fetal heart. In his later biological works, however, when he came to discuss the functions of the heart, the description of vessels "passing through" the heart was a metaphor that he had to disavow roundly. For him, the heart is the source of both halves of the great vessel and both halves of the aorta. The irony is that the metaphor, which served to explain the anatomical structure so well, derived from a view of the blood vessels that he had just explicitly criticized.

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[42] Pl. *Timaeus* 70b.

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CHAPTER 5

Earthquake and Epilepsy: The Body Geologic in the Hippocratic Treatise *On the Sacred Disease*

John Z. Wee

Meteorological works by Aristotle and Seneca describe the movement of wind underground through venous passages into hollows downstream, where the air becomes compressed and escapes with violent force resulting in earthquakes. Both authors compared this behavior to pathological processes in the human body that give rise to shivers and even convulsions. Ideas of the body geologic, in fact, are already evident in the treatise *On the Sacred Disease*, where epileptic fits arise from circumvolutions of wind trapped within veins that are choked up with phlegm. Beyond obvious similarities of earthquake and epilepsy, the subterranean riverscape of veins and hollows also lent itself as imagery to the theory that air confers "sensibility." The logical inference that physical dimensions of bodily hollows expressed psychological capacities proved influential, shaping definitions of the heart's structure and the anatomical basis for laterality.

1 Introduction

> "Der Erdbidmen kompt gleich auch in solcher Ursachen wie die fallende Krankheit."
>
> – PARACELSUS, *Von den Krankheiten, die der Vernunft berauben* (1567)[1]

The good earth shared her secrets with the human body. When Aristotle and Seneca among others theorized about the mysterious causes of earthquakes, they appealed to similar fits of shivering and trembling in human patients. For

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[1] K. Sudhoff, ed., *Theophrast von Hohenheim, gen. Paracelsus, Sämtliche Werke, 2. Band* (München: R. Oldenbourg, 1930), 396 (§IV, 42); cf. G. Zilboorg, trans., "The Diseases that Deprive Man of His Reason, Such as St. Vitus' Dance, Falling Sickness, Melancholy, and Insanity, and Their Correct Treatment," in *Four Treatises of Theophrastus von Hohenheim called Paracelsus*, ed. H. E. Sigerist (Baltimore: The Johns Hopkins Press, 1941), 144.

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these authors, tremors deep within the earth's bowels resulted from the violent action of "wind" (πνεῦμα),[2] which coursed through a venous network of subterranean tunnels and caverns. Some thinkers, in particular, imagined these ramifying structures of the earth as branching arteries and veins that, similarly, proliferated beneath an opaque surface of skin, beyond the reach of the physician's eye. The Hippocratic work *On the Sacred Disease*[3] includes similar notions on the body geologic, perhaps understandably so, since the convulsive nature of epilepsy would have naturally suggested an analogy with earthquakes. The imagery of wind within veins and hollows underground shaped views concerning the physiology and the anatomy of intelligence, which differed in subtle but important ways from other Hippocratic accounts of the sacred disease, as well as ideas about the role of air in sense-perception and thought by Diogenes of Apollonia.

2 Earthquakes and the Subterranean Riverscape

While volcanoes were probably first encountered during Greek settlement in Magna Graecia and theories of their origins appear in the literature anonymously, the experience of seismological activity was part and parcel of living in mainland Greece, Italy, and Asia Minor, and major authors included earthquakes as integral components of their meteorological discourses.[4] Though both are known in modern times as geological features resulting from plate tectonics, it is not clear that the two always arose from the same causes in the ancient imagination. The attribution of volcanicity to subterranean streams of fire and mud (Pl. *Phd.* 111D–E, 113B) or their comparison with furnaces, for example, were intuitive explanations for the outpouring of molten lava and the release of great heat during volcanic eruptions. On the other hand, in surveys by Aristotle (*Mete.* 2.7–3.1), Seneca (*QNat.* 6), and the pseudo-Plutarch[5] compiler of *Placita philosophorum* (3.15) on reasons for earthquakes, we find a great variety of opinions categorized roughly according to the traditional elements of water, fire, earth, and air,[6] among which, theories involving underground wind appear prominently. These last are of particular interest to us here, since they were compared with the behaviors of wind in the human body. Aristotle's own account is worth citing at length:

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[2] At the expense of sometimes-stilted English translations, I render αἰθήρ as "ether," ἄνεμος as "air-current," πνεῦμα as "wind," ἀήρ as "air," and φῦσα as "breath" throughout this essay, for the sake of clarity in discussing technical uses of the latter terms in the Hippocratic works *On Breaths* and *On the Sacred Disease*.

[3] In-text references to *Sacred Disease* follow the section numbering in J. Jouanna, *Hippocrate, La maladie sacrée*, Collection des universités de France, Tome 2.3 (Paris: Les Belles Lettres, 2003), which differs from the numbering in the corresponding Loeb edition (Jones 1923).

[4] H. M. Hine, "Seismology and Vulcanology in Antiquity," in *Science and Mathematics in Ancient Greek Culture*, ed. C. J. Tuplin and T. E. Rihll (Oxford: Oxford University Press, 2002), 56–75.

[5] Attributed to Aëtius by H. Diels, *Doxographi Graeci* (Berlin: G. Reimer, 1879); whose views were accepted with modifications by J. Mansfeld and D. T. Runia, *Aëtiana: The Method and*

> In the mentioned places, (the severest) earthquakes occur mostly due to the constricted space.… During heavy rains, more exhalation within (the earth) is produced and, being trapped in constricted spaces and forced into a yet smaller space by water filling the hollows (τῶν κοιλιῶν), much that is compressed into little space begins to push back, and the air-current (ἄνεμος) moves violently, flowing and rushing. For we must suppose that, just as the power of wind (πνεύματος) trapped within is responsible for both trembling and throbbing in our bodies, likewise, wind in the earth is comparable, as well as the kinds of trembling or throbbing by earthquakes. And just as it often happens with urination—for a sort of tremor occurs through the body, when wind suddenly moves inside from outside—such things occur also in relation to the earth. For we must observe the extent of power the wind has, not only from what occurs in the air (ἀέρι)—for there, one assumes it can produce such effects due to its huge volume—but also in the bodies of living creatures. Tetanuses and spasms[7] are movements of wind, and they have so much force that many people who combine their efforts at restraining those afflicted are unable to hold down their movement. We must suppose that such things happen also in the earth, by way of likening the great to the small.
>
> Arist. *Mete.* 2.8, 366a30–32, b9–30 in Louis 1982, 90–92

The applicability of earthquake mechanisms to the bodies of living creatures seems not to have been uniformly understood. In his account of Aristotle's unpreserved work *On Plants*, Nicolaus of Damascus described how the earth's

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Intellectual Context of a Doxographer, Vol. 1 (Leiden: Brill, 1997), 3–124; but recently questioned by H. Bottler, *Pseudo-Plutarch und Stobaios: Eine synoptische Untersuchung*, Hypomnemata 198 (Göttingen: Vandenhoeck & Ruprecht, 2014).

[6] In Aristotle's enumeration (*Mete.* 2.7), we observe also the elements arranged in decreasing order of their natural distances from the center of the universe: ether, (fire, air), water, and then earth. *Mete.* 1.3, 339b19–340b3; cf. [Arist.] *Mund.* 2–3, 392a4–393a9.

[7] One wonders if infants that suffer from spasms due to the consumption of "wind-producing vegetables" (φυσωδῶν) (Arist. *Hist. an.* 9(7).12, 588a4–13; cf. φυσ⟨κ⟩ωδῶν in 3.21, 522b32 and φυσητικοῖς in 7(8).7, 595b6) were thought to experience a condition similar to the one described here.

solidity prevented the gradual dispersal of underground exhalations and allowed them to accumulate in pressure leading to an earthquake, but denied that similar phenomena could occur in the porous bodies of animals and plants (822b30–823a18).[8] Elsewhere, this question on the permeability of earth or flesh also represented an important precondition for the earthquake model, as evident in Anaxagoras' claim that rain clogging up the earth's porosity was requisite for earthquakes (Arist. *Mete.* 2.7, 365a22–23), as well as in Seneca's assertion that "(human) skin repels breath" (*QNat.* 6.24.2).[9] Aristotle's example above of post-micturition convulsion syndrome (known colloquially today as 'pee shivers') is discussed also in the *Problems* (8.8, 13; 33.16) ascribed to his name, where urination is compared to sneezing in that the volume of urine or breath expelled is replaced by air from the outside, but where shivering comes about due to the coldness of this external air. Alexander of Aphrodisias, however, may have more precisely conveyed the argument in Aristotle's *Meteorology*, when he spoke of compression (στενοχωρεῖσθαι) of wind and urine in the narrow confines of the bladder as the means by which urine is forced out.[10]

In his recent monograph, Malcolm Wilson labeled Aristotle's view as "the theory of the strait," according to which "the alternating movement of a fluid through a narrow passage … serves to intensify and amplify the flow."[11] To be sure, the author of *Placita philosophorum* (3.15.4) and Aristotle himself (*Mete.* 2.7, 365a19–23) acknowledged that the idea of "air" or "ether"[12] forcibly trapped beneath the earth was one already held by the fifth century BCE thinker Anaxagoras, a claim echoed in later testimonies by Diogenes Laertius and Hippolytus.[13] A similar mechanism appears also in the earthquake model by Epicurus (ps.-Plut. *Placit.* 3.15.11), whose *Letter to Pythocles* describes "the imprisonment of wind underground" and "its being interspersed with small masses of earth and then set in continuous motion, thus causing the earth to tremble."[14] As Wilson saw it, however, Aristotle's "theory of the strait" constituted part of a larger metaphor comparing geohydrological structures and processes to the human digestive system, so that subterranean wind like vapors from ingested food is "driven forward and then turns and changes like the tide in a narrow strait" (Arist. *Somn. vig.* 3, 456b20–21), and so that the salty sea as the final incarnation of riverine flow appropriately recalls the salinity of urine.[15]

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[8] H. J. Drossaart Lulofs and E. L. J. Poortman, eds., *Nicolaus Damascenus de Plantis: Five Translations* (Amsterdam: North-Holland Publishing Company, 1989), 176–79 (§150–53), 541–42, 608–09.

[9] Whereas Anaxagoras considered σομφός ("porous, spongy") a condition of the earth that was inimical to earthquakes (Arist. *Mete.* 2.7, 365a23), Aristotle used the same term to indicate spaces by which earthquake-causing winds could be accommodated underground (Arist. *Mete.* 2.8, 366a25, a33).

[10] M. Hayduck, ed., *Alexandri in Aristotelis Meteorologicorum Libros Commentaria*, Commentaria in Aristotelem Graeca 3.2 (Berlin: Georg Reimer, 1899), 118 (l. 35).

[11] M. Wilson, *Structure and Method in Aristotle's Meteorologica: A More Disorderly Nature* (Cambridge: Cambridge University Press, 2013), 223–24.

[12] "It is remarkable that Aristotle should use the word *aither* [*Mete.* 2.7, 365a19], which was the term used by Anaxagoras for fire. Even in his own vocabulary it does not mean air, of the dense sort that is underneath the earth, so it is probable that he is using the terminology of the earlier thinker. If this is so, both he and the doxographers are giving a partial account, and the full explanation is that given by Seneca, who describes the theory as involving both air and fire in conflict. Anaxagoras will then, as [Otto] Gilbert suggested and as is very plausible, have connected earthquakes and volcanic eruptions." W. K. C. Guthrie, *A History of Greek Philosophy, Volume II, The Presocratic Tradition from Parmenides to Democritus* (Cambridge: Cambridge University Press, 1969), 310–11; cf. O. Gilbert, *Die meteorologischen Theorien des griechischen Altertums* (Leipzig: B. G. Teubner, 1907), 298–302.

For Aristotle (*Mete.* 2.8), winds end up underground for diverse reasons, whether due to exhalations formed within the earth (365b21–28), atmospheric air-currents that gush downward (366a9–11), the flow of seawater that drives wind back into subterranean channels (366a23–b2), or rainwater that percolates the soil and compresses any underground exhalations deeper and deeper into the earth (366b9–14). As depicted in the citation earlier, the constriction of wind that gives violent impetus to earthquakes takes place within a subterranean space designated as "hollow" (κοιλία, κοῖλος).[16] The infrastructure of gaps and passages underground is more often inferred from accounts of hydrological or seismological activity than explicitly described, and it is not entirely clear whether alternative terms such as ὕπατρος ("cavernous"; *Mete.* 2.8, 366a27), φάραγξ ("chasm"), and διάστασις ("fissure") (*Mete.* 1.13, 351a1) were precise synonyms or came with different nuances. Rumblings produced by earthquakes were analogous to thundering during storms, which were caused by the forceful expulsion of air trapped inside "hollows" in clouds (*Mete.* 2.9, 369a25–29, b2, 370a25–28).[17]

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[13] Cf. σεισμὸν ὑπονόστησιν ἀέρος εἰς γῆν (Diog. Laert. *Vit. phil.* 2.3.9) in R. D. Hicks, *Diogenes Laertius, Lives of Eminent Philosophers, Volume II*, LCL 185 (Cambridge, Massachusetts: Harvard University Press, rev. 1931), 138–39; σεισμοὺς δὲ γίνεσθαι τοῦ ἄνωθεν ἀέρος εἰς τὸν ὑπὸ γῆν ἐμπίπτοντος. τούτου γὰρ κινουμένου καὶ τὴν ὀχουμένην γῆν ὑπ' αὐτοῦ σαλεύεσθαι (Hipp. *Haer.* 1.8) in L. Duncker and F. G. Schneidewin, *Refutationis omnium haeresium, librorum decem quae supersunt* (Göttingen: sumptibus Dieterichianis, 1859), 22, ll. 48–50.

[14] Diog. Laert. *Vit. phil.* 10.105 in Hicks 1931, 632–33. In the account by Lucretius (6.577–600), the violent action of wind underground is but one among other causes of earthquakes and, even then, this violence seems to be portrayed as a quality innate to wind, rather than as the result of air compression and the build-up of pressure.

[15] Wilson, *Structure and Method in Aristotle's Meteorologica*, 181, 188–91, 193. It is interesting that the alternating movements of food vapors leading to sleep, which Aristotle claimed to be "like epilepsy" (*Somn. vig.* 3, 457a9–10), do not resemble violent convulsions caused by circumvolutory winds that are the main focus of this essay, illustrating how similar imagery (i.e., vapor/wind movement) can be applied to similar conditions (i.e., epilepsy) in essentially different ways. Ph. J. van der Eijk, "Hart en hersenen, bloed en pneuma," *Gewina* 18 (1995): 227–28.

[16] In other theories, ether (Anaxagoras) or water (Democritus) likewise exert their force at the scene of the "hollow." Arist. *Mete.* 2.7, 365a21, b3–4.

There are some indications, however, that a "hollow" referred more specifically, not merely to any perforation in the earth, but to a larger enclosure that functioned as a reservoir for wind and water. Rejecting the view that "hollows" were collecting basins for rainwater and represented the *beginnings* of rivers (*Mete.* 1.13, 349b3–6, 350b23–24), Aristotle portrayed them instead as *intermediary nodes* or *end points* to riverine flow,[18] which received water and wind pushed along underground streams, and whose limited capacity was responsible for the build-up of pressure that erupted in earthquakes. Indeed, in accordance with the metaphor of digestion in the *Meteorology*, the sea itself—as it were, the terminal "hollow"—is fittingly compared to the human "belly" (κοιλία) with its contents of bitter chyme (2.2, 355b14; cf. 356b1–3).[19]

Though later authors traced back to Anaxagoras the notion of ether or air compressed within the earth, it was the opinion of his student Archelaus that Seneca identified as the closest precursor to the views of Aristotle and Theophrastus:[20]

> Archelaus, a careful inquirer, says: Winds (*uenti*) gush down into the hollows (*concaua*) of the earth. Then, when all the spaces are full, and the air (*aër*) is as packed as it can be, any breath (*spiritus*) that arrives later

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[17] A similar explanation for thunder is given in Sen. *QNat.* 2.27.1, where the Latin *concavus* corresponds to the Greek κοιλία here.

[18] Note also how the district of Ammon in Libya, which was above ground but below sea level, was designated as "hollow" (κοῖλος) in comparison to the embankment adjacent to it, since it would have been natural for (sea)water to flow into this "hollow" if not for the intervening embankment. Arist. *Mete.* 1.14, 352b33.

[19] Besides the belly, the same comparison of bitter seawater with the products of digestion also led to an association with the "bladder" (κύστις). Arist. *Mete.* 2.3, 358a10.

[20] I understand the demonstrative adjective in the statement "You may consider Aristotle and his student Theophrastus … to be also of this opinion (*in hac sententia*)" (Sen. *QNat.* 6.13.1) as an anaphoric reference to Archelaus' views in Sen. *QNat.* 6.12.1–2. This interpretation may also be discerned in translations by W. W. Fortenbaugh, P. M. Huby, R. W. Sharples, and D. Gutas, et al., *Theophrastus of Eresus: Sources for His Life, Writings, Thought and Influence, Part One*, Philosophia Antiqua 54.1 (Leiden: Brill, 1992), 365, no. 195; H. M. Hine, *Seneca: Natural Questions* (Chicago: University of Chicago Press, 2010), 98.

> presses and squeezes what came before, and with repeated blows it first compresses it, then repels it away. As it seeks out a place (to accommodate its bulk), it widens all constricted spaces and endeavors to break out of its confines. As the breath wrestles and seeks out an escape, the earth ends up being shaken.… You may consider Aristotle and his student Theophrastus … to be also of this opinion. I shall expound their view: There is always some exhalation from the earth, which is sometimes dry, sometimes mixed with moisture. This is produced from the depths and rises as much as it can. When it has nowhere farther to go, then it reverses direction and turns backwards. Then there is contention as the breath moves back and forth, scattering obstacles, and, whether it is blocked off or forces its way out from constricted spaces, it incites movement and tumult.
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> Sen. *QNat.* 6.12.1–2 and 6.13.1 in Hine 1996, 248–50, ll. 388–395, 406–415

Seneca's narrative agrees with the account in *Meteorology*, where Aristotle allows for a variety of circumstances leading to the presence of subterranean winds, but highlights the proposal of underground exhalations as an Aristotelian contribution. To be sure, there has been substantial discussion on whether Theophrastus' beliefs about exhalations and wind were indeed aligned with those of his teacher,[21] but the discrepancies, if any, were insignificant at least for Seneca's purpose here. In the excerpt above, as well as elsewhere in *Quaestiones naturales*, the "hollow" (*caverna*, (*con*)*cavus*) reprises its role as the scene of wind consternation beneath the earth.[22] Again, there is ambiguity concerning the precise forms of these lacunae, but they are given greater definition in an alternative model for earthquakes, which moves away from the metaphor of digestion in Aristotle's *Meteorology* and finds comparison instead with human respiratory and vascular systems:

> Some think the reason for earthquakes is breath (*spiritu*) and nothing else, but by means other than what Aristotle preferred. Listen to what they say: Our bodies are irrigated by blood as well as by breath, which flows along its (own) paths. We have some narrower receptacles for the

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[21] See survey of opinions in R. W. Sharples, *Theophrastus of Eresus: Sources for His Life, Writings, Thought and Influence, Commentary Volume 3.1, Sources on Physics* (*Texts 137–223*), Philosophia Antiqua 79 (Leiden: Brill, 1998), 146–52.

[22] As references to subterranean hollows, see also *cavus* in Sen. *QNat.* 3.9.1; 5.14.1; 6.22.2; 6.25.1; *concavus* in Sen. *QNat.* 6.20.1; 6.26.3; and *caverna* in Sen. *QNat.* 3.15.8; 5.14.3; 6.13.4; 6.14.4; 6.22.2; 6.24.3.

> soul (*animae*), through which it does no more than move, and some wider ones, in which (soul from separate receptacles) is joined together and from which it is partitioned out (into separate receptacles). Likewise, the entire body of the whole earth is permeated by water that corresponds to blood, as well as by wind that one may call soul.... If (breath entering the earth) encounters and confronts an obstacle to its path, first it accumulates as air pours in from behind, then it spitefully escapes through some crevice, gushing more violently the more it is constricted.
>
> Sen. *QNat.* 6.14.1–3 in Hine 1996, 251–53, ll. 443–452, 468–471

The expression "which flows along its (own) paths" (*qui per sua itinera decurrit*) most likely refers to separate routes for blood and for breath, given the subsequent mention of receptacles intended for the "soul," which is equated here with "wind" and "breath." Although Seneca implied that the theory propounded above was not entirely identical to his own (*QNat.* 6.16.1), the difference did not lie in the imagery itself, but in the interpretation of its realism: Whereas the network of vessels supplying blood and soul to the human body could be thought to mirror similar structures beneath the earth, these were not merely formal parallels in Seneca's view, but actual features by which the earth provided life-giving soul to plants rooted in it. As several have observed, the implication that the earth was a living organism resonated well with beliefs held by the Stoics.[23] Seneca's conception of the living earth included the ramification of vessel-like tunnels depicted in the citation above: "It is my opinion that the earth is governed by nature, and in fact according to the model of our own bodies, in which there are both veins and arteries. The former are receptacles for blood, the latter for breath. In the earth too there are paths through which water flows, others through which breath does" (*QNat.* 3.15.1).

By designating subterranean spaces as "veins," Seneca not only gave definition to their structure, but also emphasized their continuity with "veins" close to the earth's surface that directly connect with river streams or springs that run above ground.[24] There is, interestingly, oblique confirmation here of the impression in Aristotle's *Meteorology*, where earthquakes originate in "hollows" encountered in the later stages of underground streams. In the body geologic, the proper destination for inhaled breath was not so much the vascular network of arteries, nor the interstices in densely packed muscle and flesh, but the spacious "hollows" in organs or regions deep within the human body:

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[23] J. Althoff, "Vom Schicksal einer Metapher: Die Erde als Organismus in Senecas *Naturales Quaestiones*," in *Antike Naturwissenschaft und ihre Rezeption* 7, ed. K. Döring, B. Herzhoff, and G. Wöhrle (Trier, 1997), 95–110; J. Wildberger, *Seneca und die Stoa: Der Platz des Menschen in der Welt*, 2 Vols (Berlin: De Gruyter, 2006), 20 and 495 n. 135; G. D. Williams, *The Cosmic Viewpoint: A Study of Seneca's Natural Questions* (Oxford: Oxford University Press, 2012), 241–45; L. Taub, "Physiological Analogies and Metaphors in Explanations of the Earth and the Cosmos," in *Blood, Sweat and Tears—The Changing Concepts of Physiology from Antiquity into Early Modern Europe*, ed. M. Horstmanshoff, H. King, and C. Zittel (Leiden: Brill, 2012), 49 n. 25.

> For in our bodies also, skin repels breath, and it cannot enter except where it is inhaled. And after we take it in, it cannot find its place except in a roomier part of the body. For it is not accommodated in the muscles or the flesh, but in the viscera and the open recesses (*recessu*)[25] of (our) inner parts. One may indeed suspect the same concerning the earth, because movement (i.e., an earthquake) occurs not at the earth's surface or near the surface, but beneath and far below. This is evident from the fact that even very deep seas are disturbed due to movement (in the earth) above which they are spread out. Therefore, in like manner, the earth shakes from its depths, and breath is collected in enormous hollows (*cauernis*) down below.
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> Sen. *QNat.* 6.24.2–3 in Hine 1996, 266, ll. 715–725

3 A Choice of Pathologies

Despite various references to the "sacred disease" in antiquity, and indeed the possibility that more than a single disease in modern times may have fallen under the category, the Hippocratic treatise *On the Sacred Disease* and its depiction of epileptic seizures have dominated our understanding of the condition.[26] It is illuminating to compare this prevailing model with accounts of the sacred disease in the work *On Breaths*, which have been ascribed to a "rhetorical sophist who … adopted the fundamental tenet of a rather belated Ionian monist," by arguing that air was the cause behind all kinds of sicknesses.[27] Evidence adduced in *Breaths* aimed to demonstrate the immanence of air within other substances, as illustrated by the ability of sea creatures to breathe underwater (3.3), burping after meals due to the release of air from ingested food (7.2), and the shrinkage of water exposed to the open, allegedly because of the escape of its air to the surrounding atmosphere (12.2). In like manner, bulks of air could create obstructions when combined with venous blood, whose irregular flow in turn resulted in mental disturbances characteristic of the sacred disease (14.1–6). True to its emphases, terminology in *Breaths* was shaped by the important criterion of air's relationship to bodies: "Wind (πνεῦμα) in bodies is called breath (φῦσα), outside bodies (it is called) air (ἀήρ)" (3.1).[28]

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[24] Sen. *QNat.* 3.3; 3.7.3; 3.15.5–6; 3.19.4; 4.2.7, 26; 6.4.1; 6.14.2; cf. φλέψ, φλέβιον ("vein") in [Arist.] *Pr.* 23.37, 935b11, 17; Polyb. 34.9.7; Str. 8.6.21.

[25] For *recessus* as a subterranean feature, see Sen. *QNat.* 3.9.1; 5.14.1; 6.13.3.

[26] O. Temkin, "The Doctrine of Epilepsy in the Hippocratic Writings," *Bulletin of the Institute of the History of Medicine* 1 (1933): 277–322; O. Temkin, *The Falling Sickness: A History of Epilepsy from the Greeks to the Beginnings of Modern Neurology*, 2nd ed. (Baltimore: The Johns Hopkins Press, 1971), 3–81.

Despite modern skepticism for the Hippocratic authorship of *Breaths*, Jouanna has pointed out its cogency with Aristotle's supposed opinion of Hippocrates in papyrus *Anonymus Londinensis* (5.35–6.43), which identifies breaths as causes of disease in general and attributes their bodily presence to residues from improperly digested foods,[29] perhaps reminiscent of Aristotle's own theories about exhalations from the solid earth (*Mete.* 2.8, 365b21–28) or from consumed food (*Somn. vig.* 3, 456b20–21) that we encountered earlier. Without necessarily taking a position on whether *Breaths* or *Sacred Disease* more accurately reflects any Hippocratic consensus, it can be instructive to treat seriously the availability of alternative ideas in antiquity, and how choices among pathologies could be influenced by motivations that were not entirely medical.

While attempts to portray *Sacred Disease* as a precursor to modern rational and scientific medicine have been shown to underestimate the abiding role of religion and belief in the treatise, it remains valid to recall its author's avowed intention to prove that the sacred disease "is not any more divine or more sacred than other diseases, but has a natural cause" (1.1).[30] To anticipate my discussion below, this was accomplished in at least two important ways: First, by singling out phlegm as the material agent of the sacred disease, the author made the disease's specificity to phlegmatic family lines belie any claims of its divine origin, since one might expect the gods to afflict all men equally regardless of heredity (2.3). Secondly, by tracking air content in continuous streams that extended from the atmosphere to the depths of human anatomy, the author could show how alterations in mentality were intimately connected to and caused by changes in the immediate environment (17.4). In both instances, the body geologic supplied the framework for imagining pathological processes of the sacred disease that worked imperceptibly beneath the surface of the human body.

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[27] W. H. S. Jones, *Hippocrates, Volume II*, LCL 148 (Cambridge, Massachusetts: Harvard University Press, 1923), 221–22.

[28] It lies beyond the scope of this essay to analyze whether or not the author consistently followed this rule throughout *Breaths*.

[29] J. Jouanna, *Hippocrate, Des vents—de l'art*, Collection des universités de France, Tome 5.1 (Paris: Les Belles Lettres, 1988), 39–49; H. Diels, *Anonymi Londinensis ex Aristotelis Iatricis Menoniis et aliis medicis eclogae* (Berlin: Georg Reimer, 1893), 8–10; cf. "Il faut cependent noter qu'il [i.e., *Anonymus Londinensis*] associe étroitement le point de vue digestif au point de vue respiratoire, comme l'a fait le traité des *Vents* lui-même" in J. Ducatillon, "Le traité des *Vents* et la question hippocratique," in *Formes de pensée dans la Collection hippocratique*, ed. F. Lasserre and P. Mudry (Genève: Librarie Droz S.A., 1983), 266.

4 Streams of Sensibility, Caverns of Cognition

A firm chronology for variations on the wind theory of earthquakes is unfortunately elusive, though at least one version credited to Anaxagoras in the fifth century BCE was preserved in later memory. In the passages below from the Hippocratic treatise *On the Sacred Disease*, air trapped in parts of the body scrambles frantically in its effort to escape, leading to involuntary convulsions of the kind Aristotle and Seneca likened to earthquakes:

> We take in most of our wind through these veins. For they are vents (ἀναπνοαὶ) of our body, drawing the air into themselves, and they conduct (ὀχετεύουσι) it into the rest of the body through the minor veins and cool (the body) and, again, they discharge it. For wind cannot stand still, but moves upward and downward. If it is trapped anywhere and (forced to)

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[30] See survey of modern views in J. Laskaris, *The Art is Long: On the Sacred Disease and the Scientific Tradition*, Studies in Ancient Medicine 25 (Leiden: Brill, 2002), 62–72; and lengthy discussions by H. W. Miller, "The Concept of the Divine in De Morbo Sacro," *Transactions and Proceedings of the American Philological Association* 84 (1953): 1–15; H.-W. Nörenberg, *Das Göttliche und die Natur in der Schrift ü̲ber die heilige Krankheit* (Bonn: Rudolf Habelt, 1968); Ph. J. van der Eijk, "The 'Theology' of the Hippocratic Treatise On the Sacred Disease," *Apeiron* 23.2 (1990): 87–119.

> stand still, that part of the body where it (is forced to) stand still becomes uncontrolled.[31]
>
> *Morb. sacr.* 4.1–2 in Jouanna 2003, 12 ll. 10–17 = VII, 1–9 in Jones 1923, 154–55

> (The patient) kicks when air is imprisoned in the legs and cannot slip through to the outside because of phlegm. Gushing upward and downward through the blood, it causes spasms and pain. Wherefore he kicks.
>
> *Morb. sacr.* 7.10 in Jouanna 2003, 16 ll. 11–14 = X, 40–44 in Jones 1923, 160–61

Given that there is no distinction here in the contents of arteries and veins,[32] adherents of this view cannot be precisely identified with the persons Seneca described in *QNat.* 6.14.1–3, who held that arteries were receptacles containing breath, while veins were those containing blood. Perhaps because froth in the mouths of epileptic sufferers (*Morb. sacr.* 7.8) was thought to represent the outpouring of excess phlegm, the sickness was ascribed to an abundance of phlegm that seeped into veins, thus causing obstructions to the free flow of wind that coursed through blood conveyed by the vessels.[33] Whereas *Breaths* focuses on the irregular movement of blood as the cause of mental and emotional disturbance (14.1–6), *Sacred Disease* elevates the role of air, even though the descriptions above could have been just as easily construed as the stirring up of blood.[34] Terminology such as ὀχετεύω ("conduct (fluid via a conduit)") and ἀναπνοή ("vent, air-hole") corroborate the imagery of veins as bodily streams. Indeed, though ἀναπνοή and its cognate verb ἀναπνέω were staples in medical descriptions of “breathing” and “respiration,”[35] uses of the plural ἀναπνοαί for inlets or outlets of subterranean rivers (e.g., Plut. *Vit. Aem.* 14.1–2) seem to supply the primary sense here.

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[31] I have understood ἀκρατὲς and νάρκα (*Morb. sacr.* 4.2) to refer, respectively, to the loss of voluntary control and the loss of sensation in a body part, not necessarily the immobility or paralysis of that body part, as evident from the spasms and kicking in *Morb. sacr.* 7.10 (cited above) and as reflected in views by Aristotle and Seneca.

[32] See, for example, D. J. Furley and J. S. Wilkie, *Galen on Respiration and the Arteries* (Princeton: Princeton University Press, 1984), 13.

[33] An analogy might be the way menstruation was interpreted as a natural female mechanism for expelling excess humors (in particular, surplus blood). L. A. Dean-Jones, *Women's Bodies in Classical Greek Science* (Oxford: Clarendon Press, 1994), 136–44. Smaller quantities of venous phlegm could be tolerable, as these would be controlled and dissolved over time (*Morb. sacr.* 6.2).

[34] It was not inconsistent that the author of *Breaths*, who endeavored to show "diseases are all the offspring of air" (*Flat.* 5.8), should have credited psychological effects of the sacred disease to blood. Rather, because air was responsible for all kinds of sicknesses, the specific body part affected (e.g., blood flow in the case of the sacred disease) served to differentiate one disease from another. Blood receives only minor mention in *Morb. sacr.* 15.4.

Comparing the two passages above, it becomes evident that the movement “upward and downward” (ἄνω (τε) καὶ κάτω) refers not to the normal circulation of air in a healthy body,[36] but to the circumvolutions of confined wind analogous to causes of earthquakes, even if we might be reserved about equating such oscillations with Aristotle’s “theory of the strait.” It is, moreover, worth considering the literal meaning of the expression, in light of how human anatomy is oriented in the treatise *On the Sacred Disease.* In its broad survey of the major veins in the body (3.1–4), directions reflect how these internal structures are ordered in a person standing upright, so that veins extending to the brain are said to travel upward, while veins leading to the feet stretch downward. Even when the focus narrows to give attention to individual veins and bodily regions, moreover, the origin of venous phlegm as fluxes from the brain (5.2) results in the downward progression of pathological narratives. Following the descent of phlegm and air trapped on either side of it,[37] impediments to wind movement occur along a generally vertical axis.

> ὅπως δὲ τούτων ἕκαστον πάσχει, ἐγὼ φράσω· ἄφωνος μέν ἐστιν ὅταν ἐξαίφνης τὸ φλέγμα ἐπικατελθὸν ἐπὶ [MS M: ἐς] τὰς φλέβας ἀποκλείσῃ τὸν ἠέρα καὶ μὴ παραδέχηται μήτ’ ἐς τὸν ἐγκέφαλον μήτ’ ἐς τὰς φλέβας τὰς κοίλας μήτε ἐς τὰς κοιλίας, ἀλλ’ ἐπιλάβῃ τὴν ἀναπνοήν. ὅταν γάρ λάβῃ ὤνθρωπος κατὰ τό στόμα καὶ τοὺς μυκτῆρας τὸ πνεῦμα, πρῶτον μὲν ἐς τὸν ἐγκέφαλον ἔρχεται, ἔπειτα δ’ ἐς τὴν κοιλίην τό πλεῖστον μέρος, τὸ δ’ ἐπὶ τὸν πλεύμονα, τό δ’ ἐπὶ τὰς φλέβας· ἐκ τούτων δὲ σκίδναται ἐπὶ [MS M: ἐς] τὰ λοιτὰ μέρεα κατὰ τὰς φλέβας· καὶ ὅσον μέν ἐς τὴν κοιλίην ἔρχεται, τοῦτο μὲν τὴν κοιλίην διαψύχει καὶ ⟨ ἐς ⟩ ἄλλο

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[35] See survey in A. Thivel, “Air, Pneuma and Breathing from Homer to Hippocrates,” in *Hippocrates in Context: Papers read at the XIth International Hippocrates Colloquium, University of Newcastle upon Tyne, 27–31 August 2002*, ed. Ph. J. van der Eijk, Studies in Ancient Medicine 31 (Leiden: Brill, 2005), 239–49.

[36] Unwarranted is the inference that “le sang stagne parce que l’air lui-même est arrêté” and that “l’air est mouvement pour le corps par l’intermédiaire du sang, parce qu’il est cause des mouvements du sang” in M.-P. Duminil, *Le sang, les vaisseaux, le cœur dans la Collection hippocratique. Anatomie et physiologie* (Paris: Les Belles Lettres, 1983), 258.

[37] ἐπικατέλθῃ τὸ φλέγμα (*Morb. sacr.* 6.2), τὸν κατάρροον ποιήσηται (*Morb. sacr.* 7.1), τὸ φλέγμα ἐπικατελθὸν ἐπὶ τὰς φλέβας (*Morb. sacr.* 7.2), τοῦ δὲ φλέγματος τὸν κατάρροον (*Morb. sacr.* 8.3), ἐπικατερρύῃ τὸ φλέγμα (*Morb. sacr.* 10.4).

> οὐδὲν συμβάλλεται — τωὐτὸ δὲ ⟨ τὸ ⟩ ἐς τὸν πλεύμονα — · ὁ δέ ἐς τὰς φλέβας ἀὴρ ξυμβάλλεται ἐς ⟨ … ἐς ⟩ τὰς κοιλίας ἐσιὼν **καὶ ἐς τὸν ἐγκέφαλον** [MS θ: add. ἔρχεται], καὶ οὕτω τὴν φρόνησιν καὶ τὴν κίνησιν τοῖσι μέλεσι παρέχει· ὥστ᾽ ἐπειδὰν ἀποκλεισθῶσιν αἱ φλέβες τοῦ ἠέρος ὑπὸ τοῦ φλέγματος καὶ μὴ παραδέχωνται, ἄφωνον καθιστᾶσι καὶ ἄφρονα τὸν ἄνθρωπον.

> I will explain how (the patient) suffers each of these symptoms: He is speechless when phlegm suddenly descends upon [MS M: into] the veins and traps the air, not admitting it into the brain, or into the hollow veins, or into the hollows, thus arresting respiration. For when a man takes in wind by mouth and nostrils, it first goes into the brain, and then the major part goes into the belly (lit. the 'Hollow'), but some goes upon the lungs and some upon the veins. From these, it is dispersed upon [MS M: into] the remaining parts (of the body) via the veins. What goes into the belly cools the belly and joins nothing else. And it is the same for what goes into the lungs.[38] But the air that goes into the veins joins up (as a continuous stream), entering into the hollows **and into the brain**, so that (the brain) supplies sensibility and movement to (the remote) parts (of the body). Therefore, when the veins are shut off from air due to phlegm, and cannot admit (air), the man is rendered speechless and senseless.
>
> *Morb. sacr.* 7.2–5 in Jouanna 2003, 15 ll. 5–22 = X, 7–27 in Jones 1923, 158–61

I consider the brain in man to possess the most ability in these ways: For when it is healthy, it is our interpreter of occurrences from the air

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[38] Many others follow the reading ὁ δ᾽ ἐς τὸν πλεύμονα τε καὶ τὰς φλέβας ἀὴρ…, "the air that goes to the lungs and the veins …" É. Littré, *Oeuvres complètes d'Hippocrate*, Vol. 6 (Paris: J.-B. Ballière, 1849), 373; J. Soury, "Nature et localisation des fonctions psychiques chez l'auteur du traité *de la maladie sacrée*," *École pratique des hautes études, section des sciences historiques et philologiques* 39.1 (1906): 29; Jones, *Hippocrates, Volume II*, 158–61; M. Wellmann, "Die Schrift Περὶ ἱρῆς νούσου des Corpus Hippocraticum," *Sudhoffs Archiv für Geschichte der Medizin* 22.3 (1929): 293; M. Vegetti, *Opere di Ippocrate* (Torino: Unione Tipografico-Editrice Torinese, 1965), 280; J. Alsina, "Hipócrates. Sobre la enfermedad sagrada," *Boletín del Instituto de Estudios Helénicos* 4.1 (1970): 91; J. Chadwick, and W. N. Mann, *The Medical Works of Hippocrates*, in *Hippocratic Writings*, ed. G. E. R. Lloyd (New York: Penguin Books, 1978), 243; W. Müri, *Der Arzt im Altertum* (München: Artemis & Winkler, 2001), 250–51. The entire paragraph is omitted in R. Joly, *Hippocrate: médecine grecque* (Paris: Gallimard, 1964), 98. I have followed Jouanna's edition in my translation, but the choice of readings here does not greatly affect my argument.

> (ἠέρος), as the air supplies it with sensibility. Eyes, ears, tongue, hands, and feet are steered according to what the brain knows. In fact, the whole body becomes sensible to the extent that it partakes of air. The brain is what communicates forth comprehension. For when a man draws wind (πνεῦμα) into himself, the air first arrives in the brain and then is dispersed into the rest of the body, having left behind in the brain its quintessence and what possesses thought and acumen. For if it were to arrive in the body first and the brain afterward, it would leave behind discernment in the flesh and in the veins, and reach the brain hot, being not pristine but mixed with humor from the flesh and the blood, so as to be no longer accurate.
>
> *Morb. sacr.* 16.1–4 in Jouanna 2003, 29–30 = XIX, 1–21 in Jones 1923, 178–79

For the first of the two paragraphs cited above, I include without modification Jouanna's recent edition of the Greek. From early on, scholars have followed Wilamowitz-Moellendorff's lead in regarding with skepticism the phrase καὶ ἐς τὸν ἐγκέφαλον ("and into the brain"), printed in bold above: Not only did it appear meaningless for air that initially proceeded from the brain to return there again, it was in fact undesirable, since air that came into contact with other parts of the body would no longer be pristine and might end up contaminating the brain's functions.[39] Others who have kept the expression have not provided satisfactory answers to these objections. We approach a solution by reevaluating the term συμβάλλω (mediopassive form συμβάλλομαι above), which translators have almost uniformly understood to mean "be useful, serve a purpose, or have an effect." The same term occurs in Aristotle's depiction of a blood vessel that, having branched out from a larger vessel, "bends back and runs down through the neck and the shoulder, and joins (συμβάλλει + dat. obj.) the former branch of the blood vessel at the bend of the arm" (*Hist. an.* 3.3, 514a11–14). As we might suspect, the imagery behind these descriptions is once again that of flowing streams that "join" together,[40] a connection that Seneca implied when he compared subterranean conduits to wide arteries, “in which (soul from separate receptacles) is joined together and from which it is partitioned out (into separate receptacles).”[41] In such contexts, objects of συμβάλλω take the accusative or dative case without any preposition, so preserved textual forms in the manuscripts can be accepted as they stand, without resorting to interpolations like ⟨ ἐς ⟩ and ⟨ … ἐς ⟩ in the Greek edition above.[42]

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[39] U. von Wilamowitz-Moellendorff, *Die hippokratische Schrift περὶ ἱερῆς νούσου* (Berlin, 1901), 7; O. Regenbogen, *Symbola Hippocratea*, Diss., Universitas Friderica Guilelma, Berlin (Gottingae: Apud Dieterichium, 1914), 20–21; F. Hüffmeier, "Phronesis in den Schriften des Corpus Hippocraticum," *Hermes* 89 (1961): 53–54; H. Grensemann, *Die hippocratische Schrift » Über die heilige Krankheit «* (Berlin: Walter de Gruyter & Co., 1968), 72, note to l. 90; A. Roselli, *Hippocrates: La malattia sacra* (Venezia: Marsilio, 1996), 67 (sections 5–6), 99–100 n. 68.

[40] χείμαρροι ποταμοὶ κατ' ὄρεσφι ῥέοντες ἐς μισγάγκειαν συμβάλλετον ὄβριμον ὕδωρ, "winter streams, flowing down mountains into the meeting of glens, join up their mighty waters" (Hom. *Il.* 4.452–53); ἧχι ῥοὰς Σιμόεις συμβάλλετον ἠδὲ Σκάμανδρος, "where the Simoïs and

The sequence “into the brain, or into the hollow veins, or into the hollows” (*Morb. sacr.* 7.2) neatly encapsulates the downward movement of inhaled air as it is apportioned to the whole body.[43] Whereas some scholars have viewed these bodily “hollows” as “ventricules cérébraux” (Soury), “apparato digerente” (Vegetti), or “intestino” (Alsina), or expressed puzzlement over what they might be, we have a ready answer from subterranean geography in earthquake narratives.[44] In the body geologic, veins are features that extend towards the surface[45] and lie in proximity to the sources of their flow, whereas hollows are found downstream “in the viscera and the open recesses of the inner parts” (Sen. *QNat.* 6.24.2) and are loci where trapped winds agitate and cause bodily

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the Scamander join up their streams” (Hom. *Il.* 5.774); τῶν καταλεχθέντων καὶ ἄλλων πολλῶν συμβαλλομένων τὸ σφέτερον ὕδωρ γίνεται ὁ Ἴστρος ποταμῶν μέγιστος, “because the aforementioned (rivers) and many others join up their waters, the Ister becomes the greatest of rivers,” etc. (Hdt. 4.50); τὸν μὲν Ὑδάσπην τῷ Ἀκεσίνῃ, τὸν Ἀκεσίνην δὲ τῷ Ἰνδῷ τό τε ὕδωρ ξυμβάλλοντας, “the Hydaspes joins its waters to the Acesines, the Acesines to the Indus” (Arr. *Anab.* 6.1.5).

[41] *habemus autem quaedam angustiora receptacula animae, per quae nihil amplius quam meat, quaedam patentiora, in quibus colligitur et unde diuiditur in partes* (Sen. *QNat.* 6.14.1).

[42] See examples of the syntax of συμβάλλω in footnote 40. The rationale for the interpolations is explained in Jouanna, *Hippocrate, La maladie sacrée*, 82–83.

[43] The phrase μήτε ἐς τὰς κοιλίας is missing in manuscript θ and therefore left out in publications like Müri, *Der Arzt im Altertum*, 248–49. It is, however, more easily explained as an omission than an addition in manuscript M. See Jouanna, *Hippocrate, La maladie sacrée*, 15 n. 2. The status of bodily “hollows” as entities distinct from “hollow veins” is also implied by the comment that the diaphragm “has no hollow” (*Morb. sacr.* 17.2).

[44] Soury, “Nature et localisation des fonctions psychiques,” 29; Vegetti, *Opere di Ippocrate*, 280; Alsina, “Hipócrates. Sobre la enfermedad sagrada,” 91. Uncertainty about the identities of these hollows was voiced by Jones, *Hippocrates, Volume II*, 159 n. 9; Duminil, *Le sang, les vaisseaux, le cœur*, 256–57; Roselli, *Hippocrates: La malattia sacra*, 99 n. 66.

[45] The status of veins as surface features may have been suggested also by their visibility immediately under the skin’s surface at the temples, neck, arms, and legs, not to mention instances of varicose veins.

convulsions.[46] It is true that one function of inhaled air was the cooling of the body's insides, as we notice in *Morb. sacr.* 4.1 and 7.4 above.[47] Prior to the discovery of nerves at Alexandria, however, various theories of the fifth and fourth centuries BCE involved a cognitive center in the body that was linked to peripheral organs by means of channels (πόροι, φλέβες, νευρά).[48] Among these theories, the belief that "internal air perceives" (ὁ ἐντὸς ἀὴρ αἰσθάνεται) held by Diogenes of Apollonia (Theophr. *Sens.* 39–48) resonates in part with *Sacred Disease*, where "sensibility" (φρόνησις) accompanies the admittance of air into veins and the hollows of bodily regions.[49] Michler came closest to the truth in designating this flow of air as a "Pneumastrom" or "Luftstrom."[50] Air "entering into the hollows and into the brain" (*Morb. sacr.* 7.4) should be understood not as the back-and-forth relocation of gaseous material from one position to another, but as the extension of a continuous stream into the hollows (at one end) and into the brain (at its other end).[51]

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[46] Cf. views that "κοιλίαι meint (hypothetische) Hohlräume im Körper. Andere Autoren, so der Anonymus Londinensis XXIII 20, nennen diese κοιλώματα, Carn. 8,596,4 Li. spricht von τρῶγλαι" in Grensemann, *Die hippocratische Schrift » Über die heilige Krankheit «*, 106 n. 7,3; "[κοιλίαι] bezeichnet … wahrscheinlich wesentlich kleinere Höhlungen, wie sie die Organe und vielleicht die Glieder haben" in Hüffmeier, "Phronesis in den Schriften des Corpus Hippocraticum," 54; cf. Regenbogen, *Symbola Hippocratea*, 48. The "belly" (κοιλία, lit. "Hollow") and perhaps also the lungs were illustrative of bodily hollows as termini, since air that entered into these spaces "joins nothing else."

[47] J. Jouanna, "Le souffle, la vie et le froid. Remarques sur la famille de ψύχω d'Homère à Hippocrate," *Revue des Études Grecques* 100 (1987): 221–23.

[48] van der Eijk, "Hart en hersenen, bloed en pneuma," 224.

[49] ἐδέξαντο τὸν ἠέρα αἱ φλέβες καὶ ἐφρόνησαν, "the veins receive air and exercise good sense" (*Morb. sacr.* 7.11); καὶ οὕτω παραδέχονται αἱ φλέβες τὸν ἠέρα καὶ τὸ φρόνημα ἐγγίνεται, "and the veins receive air in this way and good sense occurs" (*Morb. sacr.* 9.1); τὴν δὲ φρόνησιν αὐτῷ ὁ ἀὴρ παρέχεται … γίνεται γὰρ ἐν ἅπαντι τῷ σώματι τῆς φρονήσιος, τέως ἂν μετέχῃ τοῦ ἠέρος, "the air supplies it with sensibility … In fact, the whole body becomes sensible to the extent that it partakes of air" (*Morb. sacr.* 16.1–2). The author of *Sacred Disease* made a clear distinction between φρόνησις (which I translate as "sensibility" with its nuance of sound behavior) and αἴσθησις ("perception"). For a succinct survey on how notions of intelligence in air by Diogenes, the author of *Sacred Disease*, and others anticipated Hellenistic ideas on "natural pneuma" and "psychic pneuma," see J. Rocca, "From Doubt to Certainty. Aspects of the Conceptualization and Interpretation of Galen's Natural Pneuma," in *Blood, Sweat and Tears—The Changing Concepts of Physiology from Antiquity into Early Modern Europe*, ed. M. Horstmanshoff, H. King, and C. Zittel (Leiden: Brill, 2012), 633–38.

[50] M. Michler, "Die Atemtheorie in » De morbo sacro «," In *Aktuelle Probleme aus der Geschichte der Medizin*, ed. R. Blaser and H. Buess (Basel: Karger, 1966), 190.

The concept of air streams furnished a solution to apparently conflicting requirements in *Sacred Disease*. On the one hand, continuous contact between the brain and bodily hollows allowed the brain to maintain direct sway over remote parts of the body, and the obstruction of this thoroughfare due to venous phlegm explained not only why the intercepted body part experienced convulsions (because of the violence of trapped wind), but also why the afflicted patient seemed unable to exercise conscious control over it (because of interruption of his brain's "communication"). On the other hand, a unidirectional air stream circumvented the problem that air infused with bodily humors could corrupt the brain, since the brain would be protected by its position upstream according to this arrangement. While there are brief mentions of inhaled air being discharged (4.1), several have correctly pointed out that we are mostly getting only half the story, since "[the author's] concern is entirely with messages from the brain but not at all with reports to the brain."[52] In a sense, narratives on the body geologic in *Sacred Disease* mirror emphases in meteorological accounts on earthquakes: Just as Aristotle and Seneca reserved fuller treatment of the hydrological cycle in discussions on rivers and the sea, but devoted their attention to the antecedents for subterranean winds in discussions on earthquakes, the asymmetrical focus on air streams from (rather than to) the brain, as well as the relative silence about what happens to air *after* reaching the hollows, could be reflective of the treatise's primary concern for circumstances leading up to the epileptic fit.

As a matter of fact, the brain itself received air from sources yet farther upstream, namely, from the atmosphere: "If any major change occurs in the air due to the seasons, the brain becomes different from what it previously was, (since) it is first (among parts of the body) to perceive (αἰσθάνεται) (the changed air)" (*Morb. sacr.* 17.4). Whereas the mixing of external and internal air was what produced perceptions for Diogenes,[53] the environment exerted more direct influence over the brain in *Sacred Disease*, suffusing it with air that was an unaltered representation of conditions immediately outside the body, so that any modification of this air would compromise the brain's ability to make "accurate" (ἀκριβής) assessment of its surroundings. This immediacy between the human body and the air of its current situation also deviated from the model in *Anonymus Londinensis* and the treatise *On Breaths*, where air ends up in the body not only due to one's inhalation of the atmosphere, but importantly due to the emission of breaths from ingested food (see above).

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[51] A similar perspective may be found in *Morb. sacr.* 3.4, where the vein attached to the liver (at one end) is said to "terminate in the brain" (ἐς τὸν ἐγκέφαλον τελευτᾷ) (at its other end), without implying that the vein's contents necessarily moved in the direction towards the brain.

[52] F. Solmsen, "Greek Philosophy and the Discovery of the Nerves," *Museum Helveticum* 18 (1961): 157; also, "it is regrettable that, since the purpose of the author does not offer occasion, there is no detailed description of the mechanisms involved in sensation, though it is hardly to be doubted that the *pneuma* in the veins ending in the eye, ear, and nostrils was thought to be the basis of the physical processes, for three of the senses" in H. W. Miller, "A Medical Theory of Cognition," *Transactions and Proceedings of the American Philological Association* 79 (1948): 177.

Indeed, the choice of the term φῦσα ("breath") in *Anonymus Londinensis*, as well as the avowed definition in *Breaths* (3.1) that "wind in bodies is called breath (φῦσα), outside bodies (it is called) air," stands in striking contrast to the preferred dichotomy between πνεῦμα ("wind") and ἀήρ ("air") in *Sacred Disease*: πνεῦμα foregrounded the *movement of air* and its physical prowess, designating prevailing winds from the north and the south (*Morb. sacr.* 13.1), air drawn up by suction forces during breathing (7.3; 10.4; 16.3), and air trapped inside the body, which moves agitatedly within its narrow confines (4.2).[54] On the other hand, ἀήρ was used in situations that drew attention to the *contents of air* and any changes to its composition, such as the dessication or moisturization of atmospheric air due to the winds (13.2–3),[55] the divestment of air's quintessence in the brain or its contamination by bodily humors (16.3), and air's conferral of its quality of φρόνησις ("sensibility") to the brain (17.4), the veins (7.11; 9.1), and hollows throughout the body (16.1–2). Ignoring the distinction between "inside" and "outside" in *Breaths*, vocabulary choices in *Sacred Disease* envisioned a continuous stream of air extending from the atmosphere into the inner parts of the human body, in much the same way that etiologies on thunder and earthquakes assumed that atmospheric and subterranean winds shared identical properties and displayed similar behaviors.[56] Anatomical and physiological structures for intelligence in the body geologic belonged as part of an open system, so that changes in mentality could easily be explained in terms of the body's response (or non-response) to its immediate environment, rather than the result of divine interference.

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[53] E.g., ταύτην (i.e., external air) δὲ μειγνυμένην τῷ ἐντὸς ἀέρι ποιεῖν αἴσθησιν (Theophr. *Sens.* 40).

[54] To be sure, although the subject of ἀΐσσων, "(air) gushing (upward and downward)" (*Morb. sacr.* 7.10) is not explicitly written out, the nearest antecedent is ὁ ἀήρ, whereas the emphasis on movement might lead us to expect τὸ πνεῦμα.

[55] While this essay examines primarily imagery on earthquakes and the subterranean riverscape, distinctions between north and south winds and their relationships to bile and phlegm are also important aspects of the treatise *On the Sacred Disease*, as discussed in A. Liewert, *Die meteorologische Medizin des Corpus Hippocraticum*, Untersuchungen zur antiken Literatur und Geschichte 119 (Berlin: de Gruyter, 2015), 62–88.

[56] Thunder and earthquake were thought to result from the violence of wind escaping from its constricted hollow, whether in the cloud or in the earth. Arist. *Mete.* 2.9, 369a25–29, b2, 370a25–28; Sen. *QNat.* 2.27.1.

Just as the likelihood of earthquakes depended on whether underground hollows were large enough to accommodate volumes of wind and river-water, the presence and physical dimensions of bodily hollows became a gauge of the corresponding body part's capacity for "sensibility" (φρόνησις). Diogenes of Apollonia, in fact, claimed that plants and birds were inferior in intelligence because their flesh lacked any or enough hollows for air, though this assertion was derided and rejected by Theophrastus.[57] In the treatise *On the Sacred Disease*, arguments not unlike that of Diogenes' were employed to demonstrate the fallacy of proposals identifying the heart and the diaphragm as seats of cognition comparable to the brain:

> If a man is unexpectedly overjoyed or grieved, (the diaphragm) bounces and gives a start, due to its thinness and the fact that it is the most stretched (ἀνατέτανται) (organ) in the body. And it has no hollow (κοιλίην) necessary for receiving any encounter, whether good or bad, but is disturbed by both because of the delicacy of its nature, since it perceives (αἰσθάνονταί) nothing before the (other parts) in the body, but lays claim to a spurious name (i.e., φρένες) and (its implied) function (i.e., φρονεῖν), just like the parts by the heart called 'ears,' which contribute nothing to hearing. Some say that we are sensible by means of the heart, and that it is what engages in worry and thought. But this is not so. It merely spasms like the diaphragm, only more so for these reasons: From all the body, veins stretch (τείνουσι) into it, and it encloses them such that it perceives (αἰσθάνεσθαι) any strain or tension that occurs in the man.
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> *Morb. sacr.* 17.2–3 in Jouanna 2003, 30–31 = XX, 5–24 in Jones 1923, 178–81

Mental abilities and conditions are explained here by purely physical and mechanical features of the human body, rather than by evoking subjective causes. Experiences of emotional tension manifested themselves anatomically via a trampoline-like diaphragm[58] or a heart enclosing stretched veins, which were tautly constructed organs sensitive enough to perceive even minute vibrations reflective of psychological states. While conceding that the heart and the diaphragm were capable of such "perception" (αἴσθησις), the author of *Sacred Disease* was careful not to ascribe to them "sensibility" (φρόνησις), which was the exclusive domain of air and conferred upon only organs or body parts that received air into their hollows.[59] It is unremarkable to note that the diaphragm has no hollow, but the logic would imply that the heart also is without a hollow, an allegation that seems to fly in the face of both ancient and modern conceptions of the heart with its atria (also known as auricles) and ventricles.[60] Interestingly, a similar quip about the heart's 'ears' or auricles being spuriously named appears elsewhere, with these auricles expressly designated as "hollows" (*Cord.* 8).[61]

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[57] καὶ γὰρ τὴν σάρκα (i.e., of birds) στιφράν, καὶ τὸ πνεῦμα οὐ διιέναι διὰ παντός … τὰ δὲ φυτὰ διὰ τὸ μὴ εἶναι κοῖλα μηδὲ ἀναδέχεσθαι τὸν ἀέρα παντελῶς ἀφῃρῆσθαι τὸ φρονεῖν (Theophr. *Sens.* 44); εὔηθες … ἔτι δὲ τὰ φυτὰ μὴ φρονεῖν διὰ τὸ μὴ ἔχειν κενόν (*Sens.* 48). Similarly, in Diogenes' view, children were less capable of understanding than adults, because their smaller bodies could not accommodate as much air (*Sens.* 45).

One cannot help but wonder whether 'cardiac' spaces in *Sacred Disease* were imagined to belong, not to the heart itself, but to the confluence of veins which heart muscle surrounded and enclosed. As Miller correctly observed, "the word συγκλείσασα ["encloses"] is strange, seeming to imply that the veins are somehow enclosed by the heart without emptying blood or *pneuma* into the organ."[62] Such a view may not be entirely aligned with Plato's depiction of the heart as a "knot of veins" (ἅμμα τῶν φλεβῶν; *Ti.* 70b),[63] which seems to depict the heart as emergent from particular configurations of veins, or imply that at least portions of veins *become* heart. Plato's expression, nonetheless, acknowledges their identity as "veins" even when simultaneously designated as heart, and probably derived from earlier conceptions by Syennesis and Polybus among others, who described the crossing of blood vessels in the chest while suggestively omitting any mention of the heart.[64] In *Sacred Disease*, the idea that intravenous spaces and their contents were insulated from the heart helps account for choices of prepositions in the treatise, where phlegm is portrayed as descending merely "upon" (ἐπί) the heart (6.1–4), but moving "upon" (ἐπί) the veins and, due to their function as vents (4.1), "into" (ἐς) the veins.[65]

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[58] For a survey on the diaphragm in antiquity and its questionable role as an organ of respiration in the Hippocratic writings, see J-Ph. Derenne, A. Debru, A. E. Grassino, and W. A. Whitelaw, "The Earliest History of Diaphragm Physiology," *European Respiratory Journal* 7 (1994): 2234–40.

[59] A comprehensive study on the meanings of these terms lies beyond the scope of this essay, and it suffices here to repeat Hüffmeier's conclusion that φρόνησις in *Sacred Disease* meant "bei Sinnen sein, Herr seiner geistige Kräfte sein" and "mit dem φρονεῖν die Fähigkeit richtiger Wahrnehmung und körperlicher Beherrschung zusammengehören." Hüffmeier, "Phronesis in den Schriften des Corpus Hippocraticum," 60. See also discussion in J. M. Pigeaud, "Quelques aspects du rapport de l'âme et du corps dans le Corpus hippocratique," in *Hippocratica: Actes du Colloque hippocratique de Paris* (*4–9 septembre 1978*), ed. M. D. Grmek (Paris: Centre National de la Recherche Scientifique, 1980), 417–26.

[60] For example, ἡ δὲ καρδίη … ἐκοιλώθη οὐχ (negative particle rejected by some) ὥσπερ φλέβες (*Carn.* 5); ἡ καρδίη … δύο γαστέρας ἔχει (*Cord.* 4); γνώμη γὰρ ἡ τοῦ ἀνθρώπου πέφυκεν ἐν τῇ λαιῇ κοιλίῃ (i.e., of the heart) (*Cord.* 10). See also discussion in C. R. S. Harris, *The Heart and the Vascular System in Ancient Greek Medicine, from Alcmaeon to Galen* (Oxford: Clarendon Press, 1973), 76–96.

[61] ἀγχοῦ δὲ τῆς ἐκφύσιος τῶν φλεβῶν σώματα τῇσι κοιλίῃσιν ἀμφιβεβήκασι, μαλθακὰ σηραγγώδεα, ἃ κληΐσκεται μὲν οὔατα, τρήματα δὲ οὐκ ἔστιν οὐάτων (*Cord.* 8).

[62] Miller, "A Medical Theory of Cognition," 181 n. 33.

[63] Wilamowitz-Moellendorff, *Die hippokratische Schrift περὶ ἱερῆς νούσου*, 11; Wellmann, "Die Schrift Περὶ ἱρῆς νούσου des Corpus Hippocraticum," 312 n. 4.

Finally, the hollow as a physical representation of psychological realities expressed ideas about laterality. Whereas a stout vein from the liver that branched out on the right side of the body was named the "hollow vein" (κοίλη φλέψ),[66] its counterpart from the spleen that served the left side was said to be thinner and weaker (*Morb. sacr.* 3.4). The supposition that veins were more hollow (ἐπικοιλότεραί) and numerous on the right (10.1) explained why children recovered more readily when their flux of phlegm occurred on the right side (8.4), since veins on the right could accommodate a greater flux volume before air passages in them became choked up with phlegm. These claims in *Sacred Disease* have inspired numerous modern studies on the correlation between left-handedness and epilepsy,[67] not always yielding conclusive results. As a matter of fact, the alleged disparity in the hollowness of left and right sides probably arose, not from actual comparisons of epileptic sufferers, but as a logical inference based on healthy bodies: Since most people were right-handed and right-footed, adeptness on the right side of their bodies implied greater stores of "sensibility" within bodily hollows of larger capacities. Just as the heart could be envisioned without a hollow, the right side of the body geologic could be imagined as more cavernous. The metaphor of earthquakes in their subterranean riverscape not only explained the workings of human physiology, but also defined the very contours of anatomical structure.

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[64] See chapter by L. Dean-Jones in this volume.

[65] Anticipating the suggestion here, I rather mechanically kept to English translations of ἐπί as "upon" and ἐς as "to, into" in citations from *Sacred Disease* earlier in this chapter, for the reader's quick reference. Admittedly, ἐπὶ in MS θ twice appears as ἐς in MS M in descriptions of the flow of air "upon/into" veins or body parts via veins (see *Morb. sacr.* 7.2–5 above), but never in reference to the movement of air "into" the heart.

[66] In a more general sense, all veins may be described as "hollow," as evident from the reference to "hollow veins" (τὰς φλέβας τὰς κοίλας) in *Morb. sacr.* 7.2.

[67] To give but a few examples: I. C. McManus, "Left-Handedness and Epilepsy," *Cortex* 16.3 (1980): 487–91; F. Oyebode and K. Davison, "Handedness and Epileptic Schizophrenia," *British Journal of Psychiatry* 156 (1990): 228–30; K. I. Slezicki, et al., "Incidence of Atypical Handedness in Epilepsy and Its Association with Clinical Factors," *Epilepsy & Behavior* 16.2 (2009): 330–34.

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CHAPTER 6

The Lineage of "Bloodlines": Synecdoche, Metonymy, Medicine, and More

Paul T. Keyser

Wittgenstein calls us to join the "fight against the fascination which forms of expression exert upon us."[1] I will de-naturalize two ancient figures, so pervasive in English, and in other European languages, that we use them without noticing. "Lifeblood" is a very ancient synecdoche, found in many cultures. "Bloodline," a metonym for lineage, is quite distinct, and truly strange. We overlook the strangeness of "bloodline," because it is so pervasive, and also perhaps seduced by the apparent "naturalness" of the first notion, "lifeblood." Only two generations past did we learn that it is DNA that embodies physical heritage: before that, thinkers were pressed to discover, or invent, a material link. I show that the notion of "bloodline" is deeply weird, that it was constructed at a particular time and place, and that it regularly operates within an aristocratic and traditionalist discourse. The two figures, initially distinct, were blended within Greek conceptual space in various ways, and the resultant blend flowed into Latin discourse, and thence into European discourse generally. Over the centuries, the effects of the two ways of speaking, especially when blended, have generated ever more overt and political effects, and those increasingly baleful, so that our fight against the fascination of this blended form of expression becomes political.

1 Introduction and Overview

Neither "lifeblood" nor "bloodline" is a natural or universal image, and its pervasive presence in central texts of Western culture blinds us to their constructed nature. I begin with the expression "lifeblood," and take Greek texts as my point of departure, while introducing evidence from Egypt, Mesopotamia, China, Mesoamerica, and Paleolithic sites. The Greek texts deploy blood as a

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[1] L. Wittgenstein, *Preliminary Studies for the "Philosophical Investigations" Generally Known as The Blue and Brown Books* (Oxford: Blackwell, 1958), 27.

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synecdoche for an individual life, i.e., blood is the part of which the whole is the vitality of an individual, human or animal. The usual scholarly analysis, apparently starting from an assumption that the synecdoche is natural (i.e., that people just would think that way), explains it as originating in shared and "universal" experiences of early humans. Not all ancient cultures appear to have developed the synecdoche, and numerous metaphors for life are possible and were used. In Greek culture, the practice of phlebotomy and the theory of humors have been interpreted as placing "lifeblood" at the center of medical thinking. However, a careful consideration of the various humoral theories shows that initially blood was only one among many essential liquids. The "lifeblood" synecdoche focused the mind on certain ways of thinking about the body and health, and likewise deflected the mind from certain other modes of thought. The synecdoche focuses the mind on a certain way of thinking about life—that life is a thing you can lose, rather than a process that ends, and that life is embodied in an essential substance contained in the body, rather than being a dynamic state of existence. It also contributed to the tendency to model disease in terms of "humors," rather than as some deviation from a good state of being, or as a temporary process, as well as to a tendency to see some animals and people as "better" than others.

Next, I turn to the expression "bloodline," again taking Greek texts as my point of departure. This metonym pervades Greek and Roman writing, but, as I will argue, is far from natural and is in fact historically contingent. I trace the development of the metonym to a Mesopotamian myth, and argue that the concept was transmitted into Greek culture in much the same way as many other cultural practices and beliefs. Just as for many of those, this core cultural element has an exogenous origin. Within Greek and Roman culture the metonym regularly operated to promote aristocratic and traditionalist views of genealogical relations, whether familial or ethnic.

Moreover, the concepts of "bloodline" and of "lifeblood" were blended, and the resultant blend produced novel models of generation and health, and began to elicit the notion that "bloodlines" could be "better" or "worse." I briefly trace the further influence of this blend up to the modern era.

2 The "lifeblood" Synecdoche

In the earliest strands of Greek literature, blood appears as a substance of great power, and many texts speak of blood as the liquid of life. These texts are using blood as synecdoche for an individual life, the vitality of an individual, human or animal. Why would blood play this role—and why indeed would any substance at all stand for life? The emergence of a metaphor to express "life" may be inevitable, but a metaphor based on blood is not inherently "natural," not even if it has become pervasive.

In the *Odyssey* (3.455), the sacrificed animal (a heifer) dies just when all her blood drains: τῆς δ᾽ ἐπεὶ ἐκ μέλαν αἷμα ῥύη, λίπε δ᾽ ὀστέα θυμός ("when the dark blood flowed out of her and the life left her bones"). Some warriors in the *Iliad* also die by hemorrhage.[2] However, in the *Iliad* nearly all (over 95 %) of the accounts of death in battle omit mention of blood.[3]

On the other hand, many of the texts that speak of "lifeblood" refer to the drinking of blood. Teiresias, for example, explains to Odysseus that ghosts who drink blood regain for a while a greater semblance of life, saying "let me drink the blood and I shall speak the truth" (*Odyssey* 11.96, αἵματος ὄφρα πίω καί τοι νημερτέα εἴπω), and then promises that the dead who drink will speak, and will speak truly (11.147–148: ὅν τινα μέν κεν ἐᾷς νεκύων κατατεθνηώτων / αἵματος ἆσσον ἴμεν, ὁ δέ τοι νημερτὲς ἐνίψει). This is the blood of the sheep slaughtered by Odysseus and poured into a pit. In the *Oresteia* trilogy of Aeschylus, it is the Furies who gain strength by drinking human blood, and demand "a third drink of undiluted blood" (*Libation Bearers* 578: ἄκρατον αἷμα πίεται τρίτην πόσιν). In Sophocles, it is Electra who is accused by Clytemnestra of "forever drinking up the undiluted blood of my life" (*Electra* 785–786: τοὐμὸν ἐκπίνουσ᾽ ἀεὶ / ψυχῆς ἄκρατον αἷμα). In both tragedians, the "undiluted" suggests that the blood in the synecdoche is bleeding into the semantic range of wine.

The "lifeblood" synecdoche is rich enough that wine gets mixed up with blood in other texts, too. Herodotos tells several tales of blood diluted with wine and drunk to seal an oath or work a ritual (1.74.2, 3.8.1, 4.64.1), especially when an army of Greek mercenaries avenge themselves upon a traitor by slaughtering his sons and drinking their blood mixed with water and wine (3.11.3). Herodotos also records that the steppe people known to Greeks as "Skythians," residents of the north coast of the Black Sea, sealed their oaths by drinking wine mixed with a little blood from each party to the oath (4.70), and although this is framed as a barbarian custom, clearly it was part of the Greek conceptual space. The near-equivalence of blood and wine allowed Euripides to describe the wine-god Dionysos as rejoicing in blood (*Bacchae* 138–144), and as being himself poured out for the gods as wine (278–285).

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[2] *Iliad* 16.333–34 = 20.476–77 (πᾶν δ᾽ ὑπεθερμάνθη ξίφος αἵματι: τὸν δὲ κατ᾽ ὄσσε / ἔλλαβε πορφύρεος θάνατος καὶ μοῖρα κραταιή), 20.470–72 (ἐκ δέ οἱ ἧπαρ ὄλισθεν, ἀτὰρ μέλαν αἷμα κατ᾽ αὐτοῦ / κόλπον ἐνέπλησεν: τὸν δὲ σκότος ὄσσε κάλυψε / θυμοῦ δευόμενον), and 21.116–19 (Ἀχιλεὺς δὲ ἐρυσσάμενος ξίφος ὀξὺ / τύψε κατὰ κληῖδα παρ᾽ αὐχένα, πᾶν δέ οἱ εἴσω / δῦ ξίφος ἄμφηκες: ὃ δ᾽ ἄρα πρηνὴς ἐπὶ γαίῃ / κεῖτο ταθείς, ἐκ δ᾽ αἷμα μέλαν ῥέε, δεῦε δὲ γαῖαν).

[3] "Despite the prodigious number of individual deaths in the battle epic (approximately 240), just twelve comprise specific mention of αἷμα." T. Neal, "Blood and Hunger in the Iliad," *Classical Philology* 101 (2006): 15.

In these texts, and others to be considered below, blood is presented as a substance infused with vital power. It restores ghosts to life, its departure signals death, and it enforces or augments the power of a compact. Those powers, and the pervasiveness of the synecdoche, seem to have elicited the scholarly hypothesis that the synecdoche is "universal" and prehistoric. Indeed, the first human hunters presumably knew that when the victim bled enough, it died—and herders and farmers commonly butcher large animals by slashing their throats to cause fatal bleeding. Given the physiology of mammals, birds, reptiles, and fish—for all of which enough bleeding causes death—then conceiving of blood as being in some sense the life of an animal is understandable.

That is perhaps understandable, and even common, but nevertheless it is not inevitable. There are many ways to die: enough burning, enough immersion in water, enough starvation, enough disease, enough aging. Those observations might have produced Fire as the substance of Death, or else something like Breath as the substance of Life[4]—or might have produced a view that life depended on a dynamic state of being, rather than on a substance. Indeed, not every culture focuses so strongly on blood as the essence of vitality, and most people, even in antiquity, have not died of bleeding. In human history, it was not blood, but disease, famine, childbirth, and old age that were the greatest of the angels of death. (Even the animals we eat are not all slaughtered by bleeding: crushing the skull or breaking the neck is more common for small animals such as fish or birds.)

Some scholars have sought to establish the "lifeblood" synecdoche as "natural," rather than contingent, by turning to archaeological evidence of prehistoric behavior. There is evidence that very early humans collected red pigments, i.e., ochre and cinnabar, and used them in burials, perhaps as symbolic revivification.[5] That is, these scholars attempt to attribute the "lifeblood" figure to prehistoric people who exploited red pigments. Let us be cautious: just as for etymologies and reconstructions of extinct languages, however reliable they may be, the semantics imputed to the inferred common ancestor are far from guaranteed—the semantics are at best unclear and often simply unknown. Attributing the "lifeblood" figure to prehistoric peoples is baseless retrojection.

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[4] Indeed, see below on China, Egypt, and Mesopotamia.

[5] E. Hovers, S. Ilani, O. Bar-Yosef, and B. Vandermeersch, "An Early Case of Color Symbolism: Ochre Use by Modern Humans in Qafzeh Cave," *Current Anthropology* 44/4 (2003): 491–522; I. Domingo, P. García Borja, and C. Roldàn, "Identification, Processing and Use of Red Pigments in the Valencian Early Neolithic (Spain)," *Archaeometry* 54/5 (2012): 868–92; and W. Roebroeks et al., "Use of Red Ochre by Early Neandertals," *Proceedings of the National Academy of Sciences of the United States of America* 109/6 (2012): 1889–94. Ochre is iron oxide, and cinnabar is mercury sulfide.

Many prehistoric cultures did exploit a wide variety of pigments (as, e.g., in the Mesolithic cave paintings), but we simply do not know why they used red pigments in funerary contexts. Were the red pigments symbolic of life? Or perhaps of fire? Or were they perhaps somehow purificatory, or even pragmatic, disinfectants for example?[6] It may even be that pragmatic uses not burdened with symbolism would explain the wide use of ochre, e.g., as an essential ingredient in leather tanning[7] (so that their mortuary use was as a kind of preservative or "embalming agent"). It has also been suggested that ochre was ingested (perhaps unintentionally), which promoted maternal and infant health: that is, the extensive use of ochre for whatever purpose was an adaptively favored behavior, and the people exploiting ochre need not have been aware of the selection pressure.[8] Moreover, practice often precedes ideology or theory, and the significance imputed to an activity by its agents quite likely varied over time: symbols are often multivocal.[9] Prehistoric use of red pigments thus provides no basis for any particular explanation of the "lifeblood" synecdoche.

Another approach has been to seek parallels in other cultures, whether ancient or contemporary. The use of anthropological parallels is famously fraught, on the one hand subject to erroneous interpretation by the foreign anthropologist, and on the other failing to provide an adequate basis for analogical argument. Red is a significant color in many cultures studied by anthropologists who were educated within the tradition flowing from the Greco-Roman heritage that deploys blood as a synecdoche for life: so it may not be a great surprise that they interpret the use of ochre as a symbol for blood and life.[10] Similarly, some ancient cultures do provide a parallel to the Greek synecdoche—but other ancient cultures, equally well documented, deploy other figures for life, and do not treat blood in the highly marked way that Greek texts do.

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[6] J. Velo, "The Problem of Ochre," *Mankind Quarterly* 26 (1986): 229–37; pointing out that ochre is indeed antiseptic.

[7] L. Debreuil and L. Grosman, "Ochre and Hide-Working at a Natufian Burial Place," *Antiquity* 83 (2009): 935–54; R. F. Rifkin, "Assessing the Efficacy of Red Ochre as a Prehistoric Hide Tanning Ingredient," *Journal of African Archaeology* 9 (2011): 131–58.

[8] C. M. Duarte, "Red Ochre and Shells: Clues to Human Evolution," *Trends in Ecology and Evolution* 29 (2014): 560–65; who draws a parallel with the known high rate of shellfish consumption by early humans.

[9] The multivocal character of symbols was stressed by Victor W. Turner, see M. Deflem, "Ritual, Anti-Structure, and Religion: A Discussion of Victor Turner's Processual Symbolic Analysis," *Journal for the Scientific Study of Religion* 30 (1991): 1–25. Examples of multivocal symbolic behavior in historical western culture might include: (1) the Jewish mikveh baths of purification that evolved into the Christian baptismal bath; (2) the Jewish kashruth regulations for food that evolved into the Islamic ḥalāl regulations for food.

First, there are two ancient cultures that do provide relatively close parallels. A few Hittite texts are cited for the same synecdoche.[11] Moreover there is the Hebrew etiology in *Genesis* 9.4 for the prohibition against eating "meat in the blood of its life" (Heb. *bāśār bᵉnap̄šô d̲āmô* / LXX. κρέας ἐν αἵματι ψυχῆς), and more explicitly, *Leviticus* 17.11/14 "for the life of all flesh is its blood" (Heb. *kî nẹp̄ẹš habbāśār baddām hiwʾ* / LXX. ἡ γὰρ ψυχὴ πάσης σαρκὸς αἷμα αὐτοῦ ἐστι) and *Deuteronomy* 12.23 "the blood is its life" (Heb. *kî haddām hûʾ hannāp̄ẹš* / LXX. ὅτι τὸ αἷμα αὐτοῦ ψυχή).[12] It may even be that a Northwest-Semitic expression for "life" in its essence is the origin of the Greek noun αἷμα: the verb "to live" (used only of creatures with blood) in the plural of a nominal form, *ḤYM*, as found in Aramaic, Hebrew, Phoenician, and Punic.[13]

Somewhat farther afield, Mesopotamian, Egyptian, Chinese, and Maya texts present a different picture. In Egypt and Mesopotamia it was "breath" that stood for life, not "blood." The Akkadian word for blood, "*damu*," has no attested metaphorical use for "lifeblood,"[14] whereas the Akkadian word for "life," as in, e.g., *Epic of Gilgameš* 11.25–26, is the same word as for "breath," i.e., "napištu."[15] The same equivalence and etymology is found in Hebrew, where the word *nẹp̄ẹš* means both breath and life.[16] Likewise in Egyptian texts, it is always breath that vivifies and that sustains life, or whose loss means death, and although the "tubes" (*metu*) in the body carried many fluids, blood was found in them only as a damaging substance, or else, outside the tubes, it was a simple bodily excretion.[17] The Egyptians spoke not of “lifeblood,” but of “lifebreath.”[18] In China, the *qi* (perhaps to be rendered as “vapor”), which was extracted from inbreathed air and ingested food, dominated thought about the essence of life. *Qi* suffused and enlivened the body, and along with blood (*xue*) and pus (*nong*) was carried in the *mai* (internal vessels); blood appears in these texts primarily with a role in the etiology of disease, not of health nor of life.[19] The Maya glyph transliterated *ik’* stands for breath, and for life.[20]

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[10] See, for example, E. E. Wreschner et al., "Red Ochre and Human Evolution: A Case for Discussion [and Comments and Reply]," *Current Anthropology* 21/5 (1980): 631–44, esp. 633, 637 (Jacobson-Widding), and 640 (Stephenson); and I. Watts, "Red Ochre, Body Painting, and Language: Interpreting the Blombos Ochre," in *The Cradle of Language*, ed. R. Botha and C. Knight (Oxford: Oxford University Press, 2009), 62–92.

[11] J. Puhvel, *Hittite Etymological Dictionary*, Vol. 2 (Berlin and New York: Mouton, 1984), 305–13, s.v. "eshar, ishar" (blood), see 306.11–29, "lifeblood."

[12] The same metaphor apparently in *Psalm* 72.14.

[13] P. T. Keyser, "A Semitic Etymology for Greek αἷμα," *Semitica* 58 (2016) 289–95.

[14] CAD s.v. "*damu*" (D, pp. 75–80).

[15] CAD s.v. "*napištu*" (N I, pp. 296–304), esp. §1a (pp. 297–299) "life," §2 (p. 300) "living being," and §7 (p. 302) "breath."

[16] L. Kohler and W. Baumgartner, *The Hebrew and Aramaic Lexicon of the Old Testament*, 5 Volumes (Leiden: Brill, 1994–2000), II, 711–13 (s.v. *nẹp̄ẹš*), esp. §7 "life."

Moreover, scholars have argued that other fluids besides blood played the role of “life essence” in the early Greek texts, namely αἰών, μένος, and μυελός. If so, the role of blood as “lifeblood” is not even unique. In both the *Iliad* and the *Odyssey*, it is death to lose one’s αἰών, which has been interpreted as a liquid.[21] Another substance interpreted as “life-fluid” is μένος, serving as the dynamic and directed energy in a man.[22] The stuff found in the spinal column, μυελός, was also understood as a vital fluid.[23]

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[17] H. Grapow, *Grundriss der Medizin der alten Ägypter*, Vol. 1, *Anatomie und Physiologie* (Berlin: Akademie Verlag, 1954), 63–72 (on the heart); 72–76 (on the vessels, *metu*); 76–77 (on blood, *snf*, which “von dem Ägypter nicht als lebenswichtiger Körpersaft angesehen wurde … im Grunde nur eine Ausscheidung des Körpers”); W. Westendorf, “Atem,” in *Lexikon der Ägyptologie*, Vol. 1, ed. W. Helck and E. Otto (Wiesbaden: Harrassowitz, 1975), 517–18; J. W. Estes, *The Medical Skills of Ancient Egypt* (Canton, Massachusetts: Science History Publications, 1989), 78–82; W. K. Simpson, *The Literature of Ancient Egypt: An Anthology of Stories, Instructions, Stelae, Autobiographies, and Poetry*, 3rd ed (New Haven: Yale University Press, 2003), 280 (*Hymn to the Aten* §7, “giving breath to nourish all that has been begotten”) and 457 (*Setna Khaemuas and the Mummies* § 3/25, Naneferkaptah created wax figurines and “He caused them to live. He gave them breath”).

[18] D. Kurth, “Luft(Gott),” in *Lexikon der Ägyptologie*, Vol. 3, ed. W. Helck and E. Otto (Wiesbaden: Harrassowitz, 1980), 1098–101. The Egyptian phrase *tꜣw n ꜥnḫ* is translated by Kurth as “Lebensluft.”

[19] D. J. Harper, *Early Chinese Medical Literature: The Mawangdui Medical Manuscripts* (London: Kegan Paul, 1998), 77 (in 4th c. BCE and later, *qi* and blood were the essential components of human life, and *qi* the more necessary); 78–90 (blood and especially *qi* are carried in vessels, models of which evolve in complex ways); and 192–220 (translations of texts I.A, I.B, and I.C on the vessels that contain pus or *qi*; blood is not mentioned). E. Hsu, *Pulse Diagnosis in Early Chinese Medicine: The Telling Touch* (Cambridge: Cambridge University Press, 2010), 34–44, 136–38, 143–47.

[20] B. Stross, “Some Observations on T585 (Quincunx) of the Maya Script,” *Anthropological Linguistics* 28 (1986): 283–311.

[21] R. B. Onians, *Origins of European Thought*, 2nd ed (Cambridge: Cambridge University Press, 1954), 200–28; who cites many passages, especially *Odyssey* 5.151–53 and 160–61, and points out that youth was described as moister than age.

The persistent Greek practice of phlebotomy is a cultural practice where blood is clearly linked to life and health. To the extent that blood was understood as the essence of life, the deliberate removal of blood from the body would seem merely dangerous, rather than curative. Although familiar in the Western tradition, medical phlebotomy is far from universal or “natural,” and does not seem to have been originally Greek. The practice of phlebotomy in ancient Greece, whatever its origin, existed in tension with the “lifeblood” figure, and that demands an accounting of the semantics of phlebotomy in addition to those of “lifeblood.”

The practice of phlebotomy is definitely neither Egyptian,[24] nor Mesopotamian,[25] and parallels are remote. Early Greek texts assume that healing involves only surgery and drugs,[26] and the *Iliad* effectively defines a doctor as one who practices surgery (excising arrows) and pharmacy, a widespread definition in early Greek.[27] The earliest evidence for Greek phlebotomy is the

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[22] A. Giacomelli, “Aphrodite and After,” *Phoenix* 34 (1980): 1–19.

[23] E. M. Craik, “Myelos: Matters of Life and Death,” in *ASKLEPIOS: Studies on Ancient Medicine*, ed. L. Cilliers, Acta Classica S.2 (Bloemfontein: Classical Association of South Africa, 2008), 64–73.

[24] H. Grapow, *Grundriss der Medizin der alten Ägypter*, Vol. 3, *Kranker Krankheiten und Arzt* (Berlin: Akademie Verlag, 1956), 123; Estes, *The Medical Skills of Ancient Egypt*, 52, 83.

[25] M. J. Geller, “Bloodletting in Babylonia,” in *Magic and Rationality in Ancient Near Eastern and Graeco-Roman Medicine*, ed. H. F. J. Horstmanshoff and M. Stol (Leiden: Brill, 2004), 305–24.

[26] See *Iliad* 11.844–48 (surgery and drugs), *Iliad* 4.191, 217–219 (Makhaon healing with drugs), and *Iliad* 11.828–32 (Eurypylos asks Patroklos to practice surgery and pharmacy—because, 833–36, the two doctors Makhaon and Podaleirios are unavailable). Gods dispense drugs at *Iliad* 5.900–04 (Apollo supplies to Ares), and *Odyssey* 10.286–92 + 302–06 (Hermes supplies to Odysseus); whereas in *Odyssey* 4.220–30, Helen dispenses drugs from Egypt. Cf. also Pindar, *Pythian* 3.47–55 (spells and surgery; *ca.* 473 BCE).

[27] *Iliad* 11.514–15: ἰητρὸς γὰρ ἀνὴρ πολλῶν ἀντάξιος ἄλλων / ἰούς τ᾽ ἐκτάμνειν ἐπί τ᾽ ἤπια φάρμακα πάσσειν. The scholiast on that line provides a fragment of Arktinos, *Sack of Troy*, in which the two original doctors practice respectively surgery (Makhaon) and internal medicine (Podaleirios), sc. pharmacy. Sophocles, *Aias* 581–82, refers to doctors as practicing spells or surgery (οὐ πρὸς ἰατροῦ σοφοῦ / θρηνεῖν ἐπῳδὰς πρὸς τομῶντι πήματι), similarly *Trachinians* 1000–02 (τίς γὰρ ἀοιδός, τίς ὁ χειροτέχνας / ἰατορίας, ὃς τάνδ’ ἄταν / χωρὶς Ζηνὸς κατακηλήσει), whereas Euripides, fr. 403.5–8 Nauck, refers to doctors as practicing surgery and pharmacy (ἔσθ’ ἡμῖν ὡς ἦν μόχθος ἰατροῖς μέγας / τομαῖς ἀφαιρεῖν ἢ ποτοῖσι φαρμάκοις / πασῶν μεγίστην τῶν ἐν ἀνθρώποις νόσων). For doctors as dispensers of drugs, see also *Iliad*

Peytel aryballos (ca. 480–470 BCE),[28] no text before the Hippocratic corpus mentions phlebotomy,[29] and even the Hippocratic corpus itself rarely mentions phlebotomy.[30] Scholars have therefore sought to explain phlebotomy either as a Greek invention, or else as an import.[31]

Later Greek texts speak of phlebotomy as performed in order to remove excess blood and thus restore a balance within the body;[32] that practice operates within the system of "humors" in which blood was not the essence of life, but one of several fluids whose balance defined health (see below). Chinese medicine also developed phlebotomy, by the first century BCE; scholars dispute its origins, but it may have developed out of the earlier practices of "moxibustion" (*jiŭ*) and acupuncture.[33] There also the removal of blood was intended as

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16.28 (ἰητροὶ πολυφάρμακοι) and Solon fr. 13.58–59 West (ἄλλοι Παιῶνος πολυφαρμάκου ἔργον ἔχοντες / ἰητροί· καὶ τοῖς οὐδὲν ἔπεστι τέλος).

[28] Louvre, inv. CA-1989 + CA-2183; J. D. Beazley, *Attic Red-figured Vase-Painters*, 2nd ed., 3 Volumes (Oxford: Clarendon Press, 1963), 813, #96; and http://en.wikipedia.org/wiki/File:Medicine_aryballos_Louvre_CA1989-2183.jpg (accessed September 15, 2017).

[29] Cautery, sometimes viewed as related to phlebotomy, is first mentioned in (a) Heraclitus B58 DK^{6} (τέμνοντες, καίοντες, from Hippolytos, *Ref.* 9.10), on which see M. Marcovich, *Heraclitus: Greek Text with a Short Commentary* (Merida, Venezuela: Los Andes University Press, 1967), 233–34; and (b) Aeschylus, *Agamemnon* 848–50 (ὅτῳ δὲ καὶ δεῖ φαρμάκων παιωνίων, / ἤτοι κέαντες ἢ τεμόντες εὐφρόνως / πειρασόμεσθα πῆμ᾽ ἀποστρέψαι νόσου). For cautery within the Hippocratic corpus, see esp. *Aphorisms* 6.27 (Littré 4.570) + 7.44–45 (Littré 4.590), "surgery and cautery" (just as in Herakleitos), *Aphorisms* 7.87 (Littré 4.608) drugs, iron, and fire, and *Joints* §11 (Littré 4.104–12), etc.

[30] Brain performs a thorough survey, and shows that phlebotomy is rare compared to other therapies. P. Brain, *Galen on Bloodletting* (Cambridge: Cambridge University Press, 1986), 113–19.

[31] The "Skythians" seem to have practiced phlebotomy, as the Hippocratic corpus mentions (*Airs, Waters, Places* §22, Littré 2.78). S. Kuriyama (*Expressiveness of the Body and the Divergence of Greek and Chinese Medicine* (New York: Zone, 1999), 204–05) argues for an import from the north; and E. M. Craik ("Hippocratic Bodily 'Channels' and Oriental Parallels," *Medical History* 53 (2009): 105–16) demonstrates the parallels between early Greek and early Chinese models of vessels. An import may have traveled with traders on the Black Sea, or travelers on the steppes, such as the three mentioned by Herodotos: the shadowy Abaris (4.36), whom Plato calls a doctor (*Charmides* 158C); Aristeas of Prokonnesos (4.13–15), allegedly ca. 650 BCE; and Anakharsis the Skythian (4.76), allegedly ca. 590 BCE (Diogenes Laertius 1.101). It may instead have been a homegrown invention intended to mimic healthy menstruation: L. Dean-Jones, *Women's Bodies in Classical Greek Science* (Oxford: Clarendon Press, 1994), 136–47.

[32] See esp. Brain, *Galen on Bloodletting*. Moxibustion is the practice of burning small bundles of an herb on certain parts of the skin.

[33] Harper, *Early Chinese Medical Literature*, 92–94.

cleansing. Among the Maya, ritual bloodletting is well-attested in inscriptions of the period ca. 200–900 CE, and scholars interpret the (partially-understood) inscriptions and images as meaning that, at liminal events, the Maya sought a vision of an ancestor or a god, and offered sustenance to the gods, by letting blood from all parts of the body, especially from the tongue, earlobes, and genitals.[34] This could have originated in an apotropaic ritual performed at liminal events to ward off misfortune,[35] and numerous reasons for bloodletting can be imagined. So, for Greeks as for any ancient culture, blood being removed could signal cleansing, and could signal piety, and so on.

For Greeks, the semantic range of blood was rich. Blood still resident within the body, or already outside a body, was good to think with, in ways less and more tightly linked to “lifeblood,” as we will see in the following, and some of their thoughts about vital blood are slippery for us to grasp. Blood was conceived as one of several fluids whose balance constituted health, and whose imbalance was disease. Blood was imagined as the vehicle for vital breath or food. Blood served to purify a person guilty of murder, or tainted by other events. Blood that was shed in menstruation and that shed in sacrifice were depicted as related. Blood was spilled in surgery and thus surgery was eschewed. Blood spilled led to death, and thus death by violence became “death par excellence.” Blood could vary in quality, being better or worse in different creatures or people. Blood could vary so greatly in quality, and had so much power, that it could be used as a pharmakon, that is, as a remedy or as a poison.

First, then, several Hippocratic writers attributed various diseases to malfunctions of the blood, e.g., when its motion is blocked, or when it is chilled. The work *Breaths* explains various diseases as due to improper or unbalanced motions of blood and air within the vessels.[36] Likewise, the work *Sacred*

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[34] D. Stuart, “Royal Auto-Sacrifice among the Maya: A Study of Image and Meaning,” *RES: Anthropology and Aesthetics* 7/8 (1984): 6–20; L. Schele and M. E. Miller, *The Blood of Kings: Dynasty and Ritual in Maya Art* (New York: George Braziller, 1986), 175–208; D. Carrasco, *Religions of Mesoamerica* (New York: Harper and Row, 1990), 106–13; (2nd ed. Long Grove, Illinois: Waveland Press, 2014), 129–36.

[35] Cf. the ethnographic evidence for apotropaic amputation of fingers gathered by G. Majno, *The Healing Hand: Man and Wound in the Ancient World* (Cambridge, Massachusetts: Harvard University Press, 1975), 20–23. M. K. Nock (“Why Do People Hurt Themselves?: New Insights Into the Nature and Functions of Self-Injury,” *Current Directions in Psychological Science* 18 (2009): 78–83) models non-suicidal self-injury as “an effective means of immediately regulating aversive affective experiences and social situations.”

[36] *Breaths* §7 (Littré 6.100) ἅπαντος δὲ τοῦ αἵματος ψυχθέντος, ἅπαν τὸ σῶμα φρίσσει (“when all the blood is chilled, the whole body shivers”); §8 (Littré 6.100–102) τὸ αἷμα φοβεόμενον τὴν παροῦσαν φρίκην ξυντρέχει καὶ διαΐσσει διὰ παντὸς τοῦ σώματος ἐς τὰ θερμότατα … τὰ μὲν γὰρ

Disease argues that it is phlegm that chills the blood and air and causes the symptoms of the "sacred disease" (epilepsy).[37] Those passages show that in each book, the underlying metaphor is that blood is the source of our vitality, and disease occurs when something obstructs or disturbs the blood. That is, because vitality is embodied in a fluid, impairments of vitality were modeled as blockages of the vital fluid. Later Greek models of disease achieved greater nuance by introducing a greater variety of bodily fluids, whose balance was health, and which came to be called "humors."[38] Plato described some diseases as arising from the mixture of bile with "pure blood" (αἵματι καθαρῷ: *Timaeus* 85b–86a). The "lifeblood" figure made it seem "natural" to include blood in many systems of humors. Nevertheless, some early humoral systems omitted

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τοῦ σώματος γίνεται πολύαιμα, τὰ δὲ ἄναιμα· τὰ μὲν οὖν ἄναιμα διὰ τὴν ψύξιν οὐκ ἀτρεμέουσιν, ἀλλὰ πάλλονται, τὸ γὰρ θερμὸν ἐξ αὐτέων ἐκλέλοιπεν· τὰ δὲ πολύαιμα διὰ τὸ πλῆθος τοῦ αἵματος τρέμουσι, καὶ φλεγμονὰς ἐμποιέει, οὐ γὰρ δύναται πολλὸν γινόμενον ἀτρεμίζειν ("the blood, fearing the immediate shiver, collects and rushes through the whole body to the warmest parts … some parts of the body become over-blooded, and others bloodless: because of the cold, the bloodless parts do not keep quiet, but shake, since the heat has left them; but the over-blooded tremble because of the excess of blood, and generate inflammations, since being full they cannot keep quiet"); §10 (Littré 6.104) ἔπειτα εἰλεῖται τὸ αἷμα, οὐ διαχέειν δυναμένων διὰ τὴν στενότητα τῶν ὁδῶν ("then the blood swirls, not being able to flow through the narrowness of the passages"); §10 (Littré 6.106) ὁκόταν δὲ ἐκχυθῇ τὸ αἷμα ἐς ἀλλότριον τόπον, χρονιζόμενον καὶ σηπόμενον γίνεται πῦον, καὶ οὔτε ἄνω δύναται ἀνελθεῖν, οὔτε κάτω ὑπελθεῖν ("when the blood effuses into a foreign place, it remains and rots and becomes pus, and is not able to flow back up, nor to flow on down").

[37] *Sacred Disease* 6.2 (Littré 6.370) ὁκόταν γὰρ ἐπικατέλθῃ τὸ φλέγμα ψυχρὸν ἐπὶ τὸν πλεύμονα ἢ ἐπὶ τὴν καρδίην, ἀποψύχεται τὸ αἷμα· αἱ δὲ φλέβες πρὸς βίην ψυχόμεναι πρὸς τῷ πλεύμονι καὶ τῇ καρδίῃ πηδῶσι, καὶ ἡ καρδίη πάλλεται ("for whenever the cold phlegm descends upon the lung or heart, the blood is chilled: and the veins being forcefully chilled leap against the lung and heart, and the heart shakes"); 7.6–11 (Littré 6.374) αἱ δὲ χεῖρες ἀκρατέες γίνονται καὶ σπῶνται, τοῦ αἵματος ἀτρεμίσαντος καὶ μὴ διαχεομένου ὥσπερ εἰώθει … ταῦτα δὲ πάσχει πάντα, ὁκόταν τὸ φλέγμα ψυχρὸν παραῤῥυῇ ἐς τὸ αἷμα θερμὸν ἐόν· ἀποψύχει γὰρ καὶ ἵστησι τὸ αἷμα ("the hands become powerless and spasm, since the blood keeps quiet and does not flow through as normal … all these things happen, whenever the cold phlegm overflows onto the blood which is hot: because it chills and stops the blood"); 8.1 (Littré 6.376) ἀλλ' ἀποψύχεται καὶ πήγνυται τὸ αἷμα, καὶ οὕτως ἀποθνήσκει ("but [in children, the cold phlegm] chills off and freezes the blood, and thus kills them"); 9.1 (Littré 6.376) οὐδὲ δύναται ἐπικρατῆσαι τὸ φλέγμα, οὐδ' ἀποψῦξαι τὸ αἷμα, ὥστε καὶ πῆξαι, ἀλλ' αὐτὸ κρατέεται καὶ καταμίγνυται τῷ αἵματι ταχέως (in adults, the cold phlegm "is not able to master the blood, nor even to chill off the blood so as to freeze it, but it is quickly conquered and mixed up with the blood").

[38] E.g., Hippocrates, *Nature of Man* §2–7 (Littré 6.34–50). Much scholarly literature exists; see, e.g., Brain, *Galen on Bloodletting*, 1–14.

blood, presumably because it was "the" vital fluid, and explained disease using other fluids (bile, ichor, phlegm, water, etc.).[39]

Blood could also play a role as the vehicle of vitality. Empedocles and some of the Hippocratic writers hypothesized that the motion of blood resulted in breathing, which absorbed air, vital for life.[40] Plato however saw blood as the distillation and conduit of food (*Timaeus* 79d, 80e–81b), and Aristotle imagined the same role.[41] Other writers conceived menstrual blood as the nutritive basis for the fetus.[42] In each case, the writer seems to be trying to rationalize the given synecdoche "lifeblood," as if by saying: "blood is 'life' because of this thing that it does."

Greeks used blood for purification, especially after murder.[43] We may speculate that some form of sympathetic magic or else token of recompense was involved: if so, then here also, blood is being conceived as "lifeblood."

Menstrual blood was sometimes compared to the blood flowing from a sacrificed animal.[44] Scholars have speculated that this comparison showed an analogy between women and sacrificial animals,[45] but in the text the tenor seems rather be that the kind of blood-flow shows the kind of blood, which is vital blood, a kind that flows well and clots quickly.[46] The comparison may also have been intended to familiarize the medical observation in terms of something all male readers would have seen.[47]

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[39] E.g., *Affections* 1 (Littré 6.208) uses only phlegm and bile. See J. Jouanna, *Hippocrate: Pour une Archéologie de l'École de Cnide* (Paris: Les Belles Lettres, 1974), 105–14 (φλέγμα and μέλαινα χολή), 137–42 (αἷμα, βλέννα, λάπη, σίελον, ὕδωρ), and 244–47 (blood excluded as disease agent); M.-P. Duminil, "Les sens de *ichōr* dans les textes hippocratiques," in *Corpus Hippocraticum: Actes du Colloque Hippocratique de Mons (22–26 Septembre 1975)*, ed. R. Joly (Mons: Université de Mons, 1977), 65–76; and J. Jouanna and P. Demont, "Le sens d'ἰχώρ chez Homère (*Iliade* V, v. 340 et 416) et Eschyle (*Agamemnon*, v. 1480) en relation avec les emplois du mot dans la *Collection Hippocratique*," *Revue des Études Anciennes* 83 (1981): 197–209.

[40] Empedocles fr. B100 DK^6 = fr. 106 Inwood, in Aristotle, *Respiration* §13 (473a15–474a6); In the Hippocratic corpus, see *Breaths* §3 (Littré 6.94), and *Sacred Disease* 4.1 (Littré 6.368): κατὰ ταύτας δὲ τὰς φλέβας καὶ ἐπαγόμεθα τὸ πολὺ τοῦ πνεύματος, and 7.3–5 (Littré 6.372.14–374.1).

[41] *Parts of Animals* 2.3 (650a2–b13) and *On Sleep* §3 (456a32–b5). Cf. V. Langholf, "Abstammung und Blut. Zeugung, Ernährung, Wachstum in frühen griechischen Epos," in *Officina Hippocratica*, ed. L. Perilli et al., BzA 289 (Berlin: de Gruyter, 2011), 148–49.

[42] Hippocratic corpus, *Nature of the Child* §14–16 (Littré 7.492–496); Aristotle, *Generation of Animals* 2.4 (740a24–741a5).

[43] Aeschylus, *Seven* 680 (αἷμα γὰρ καθάρσιον), and *Eumenides* 445–50; Hippocratic corpus, *Sacred Disease* 1.12 (Littré 6.362): καθαίρουσι γὰρ τοὺς ἐχόμενους τῇ νούσῳ αἵματι; and Plato, *Laws* 9 (865a–869e), various legal cases and terms. Cf. M. L. West, *The East Face of Helicon: West Asiatic Elements in Greek Poetry and Myth* (Oxford: Clarendon Press, 1997), 51–54.

[44] Hippocratic corpus, *Diseases of Women* 1.6 (Littré 8.30) ≈ 1.72 (Littré 8.152), and *Nature of the Child* §18 (Littré 7.502); Aristotle, *History of Animals* 7.1 (581b1–2).

Conceiving blood as "lifeblood" would make one hesitant to cut a body (unless intending to kill). That in turn would tend to position surgery, which deliberately spills blood, as a challenge, or even opponent, to healing. Indeed, the Hippocratic *Oath* actually prohibits all surgery: "I will not cut, not even (οὐδὲ μὴν) those afflicted with stones" (Littré 4.630.11). Similarly, the pharmacist Scribonius Largus (ca. 40 CE) prescribes first diet, then drugs, and then, if they fail, "things are forced to surgery, and ultimately (the physician) arrives at cauterization" (pr.6: tunc coacta ad sectionem uel ultimo ad ustionem deuenit).

The synecdoche tends to focus thought on the nature of death, and especially death by violence as being somehow the death par excellence—that is, the synecdoche privileges the warrior's death by violence. The *Iliad* provides numerous detailed and emotive records of the deaths of warriors, and foregrounds the "choice of Achilles," for glory and early death (9.410–416, cf. 18.115–121), an outlook maintained in the *Odyssey*.[48] When Herodotos seeks to record the "great and wonderful works" (ἔργα μεγάλα τε καὶ θωυμαστά) of Greeks and foreigners (1.pr.), what he mostly records are wars and more wars, whereas people who die not in battle are often victims of some horror,[49] as in Greek tragedy.

Blood whether human or animal was imagined to vary in quality, to be better or worse, which contributed to a tendency to see some animals and people as "better" than others. Human blood, according to the Hippocratic corpus, *Breaths* and *Sacred Disease*, could be chilled or congealed or otherwise altered in disease (above, pp. 177–78); for Plato, it could be "pure" or mixed with bile

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[45] H. King, "Sacrificial Blood: The Role of the *amnion* in Ancient Gynecology," *Helios* 13/2 (1987): 117–19; Dean-Jones, *Women's Bodies in Classical Greek Science*, 101–03.

[46] I. M. Lonie, *The Hippocratic Treatises "On Generation," "On the Nature of the Child," "Diseases IV"* (Berlin: de Gruyter, 1981), 196. Compare Hippocratic corpus, *Nature of Man* §6 (Littré 6.46.6–8): sacrificial blood runs hot and red.

[47] Cf. Dean-Jones, *Women's Bodies in Classical Greek Science*, 226–32; noting that references to menstruation outside medical literature are very rare.

[48] A. T. Edwards, "Achilles in the Underworld: *Iliad, Odyssey*, and *Aethiopis*," *Greek, Roman and Byzantine Studies* 26 (1985): 215–27; and R. Schmiel, "Achilles in Hades," *Classical Philology* 82 (1987): 35–37; interpreting *Odyssey* 11.488–91.

[49] O. Strid, "Voiceless Victims, Memorable Deaths in Herodotus," *Classical Quarterly* 56 (2006): 393–403.

(above, p. 179). Aristotle renders all that more systematic, and places human blood in a continuum with animal blood. In his *Parts of Animals*, the primary "homoiomeric" ("all parts alike") part is blood (2.2–3, 647b10–650a1), and it serves to ground one of his major divisions, between the blooded and the bloodless animals.[50] Blood differs in quality among blooded animals (2.4, 650b14–651a19), and those with thinner and purer blood (διὰ τὴν λεπτότητα ... καὶ διὰ τὸ καθαρὸν, 650b20–21) are more intelligent, but perhaps more timorous; whereas those with thicker blood, such as bulls and bears, are more passionate (650b33–651a12).

Aristotle draws ever-finer distinctions among kinds of blood in the *History of Animals* (especially 3.19, 520b10–521b3). Blood is the most necessary part, and good blood is liquid, red, sweet, and warm; but deteriorated blood is darker (520b10–27). Blood is the finest and purest in humans (λεπτότατον ... καὶ καθαρώτατον), and thickest and darkest in bull and ass (521a2–4). Blood farther from heart is thicker and darker;[51] female blood is darker and thicker than male blood (521a21–31); and blood of older animals is thicker and darker, but that of very young ones is thin (521a31–b1). Aristotle has assigned attributes to blood on the basis of his beliefs about the animals: that could easily be reversed to create claims of this sort: "it is just because female blood is thicker and darker that therefore females are more passionate and less intelligent than males."

Blood varied greatly in quality among animals, and some animals had blood that was medically useful, mostly animals that were commonly eaten or tamed. Both in Egypt and in Mesopotamia, a few drug recipes included animal blood,[52] but the recipes in the Hippocratic corpus, although they include other animal products (bile, fat, marrow, meat, milk, organs, etc.), never use blood.[53] Later, however, Nikandros, in his medical poem on poisons, prescribes sea-turtle blood, seasoned with cumin and hare rennet, drunk in wine, as an antidote against all poisonous bites.[54] What power the sea-turtle had, that its blood was so effective, we do not know: perhaps the ambiguous nature of the beast, dwelling in the sea, but breathing as land creatures do,[55] seemed to grant it, and its blood, a kind of mastery. In the Roman era, the use of blood in medicine spread more widely. Pliny records over a dozen recipes, using the blood of bulls, goats, hares, stags, and more exotic creatures.[56] Perhaps the most peculiar prescription from Pliny involves the consumption of fresh human blood as a remedy for epilepsy, drunk directly from the wounds of dying gladiators.[57] It is as if the ghost of Teiresias has entered the Coliseum. Galen devotes many pages of his book on materia medica to the various kinds of blood and their properties: bat, bull, frog, goat, hare, pigeon, etc.[58] The essential nature of the animal, in these cases a nature deemed useful to humans, was manifest most especially in their blood.

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[50] I.e., τὸ ἔναιμον καὶ τὸ ἄναιμον: *Parts of Animals* 1.2 (642b15); see also *History of Animals* 1.4 (489a30–34) and 2.15 (505b25–32).

[51] *History of Animals* 3.19 (521a4–6); cf. also *On Sleep* §3 (458a13–19). Pliny 11.221–223, paraphrases the whole passage.

[52] Estes, *The Medical Skills of Ancient Egypt*, 94–106; M. J. Geller, *Ancient Babylonian Medicine: Theory and Practice* (Oxford: Wiley-Blackwell, 2010), 20–21, 156–57, 171, 175–76.

[53] L. M. V. Totelin, *Hippocratic Recipes: Oral and Written Transmission of Pharmacological Knowledge in Fifth- and Fourth-Century Greece*, Studies in Ancient Medicine 34 (Leiden: Brill, 2009), esp. 353–61.

[54] Nikandos, *Theriaka* 700–13. J.-M. Jacques (*Nicandre: Oeuvres*, Vol. 2 (Paris: Les Belles Lettres, 2002), 193–96) provides ample commentary, tracing the use of some animal bloods to a century earlier, and providing extensive parallels from later medical literature.

On the other hand, the blood of some animals was sometimes regarded as baleful. "Bull's blood," if not an epithet of some plant,[59] was reputed the choice of suicides,[60] and the blood of the centaur Nessos destroyed Herakles.[61] For Romans, some toxic animals, such as vipers and toads, had blood that was correspondingly poisonous.[62] Here also, the essential nature of the beast was expressed most potently in its blood.

The "lifeblood" synecdoche is pervasive, persistent, and productive—and nevertheless not "natural." To use a metaphor is, very often, to make or accept an assertion, to focus the mind on certain way of thinking.[63] The "lifeblood" synecdoche focuses the mind on a certain way of thinking about life—that life is a thing you can lose, rather than a process that ends, and that life is embodied in an essential substance contained in the body, rather than being a dynamic state of existence. Conceiving blood as a vital fluid also contributed to the tendency to model disease in terms of vital fluids, i.e., "humors," rather than as some deviation from a good state of being, or as a temporary process, and to a tendency to see some animals and people as "better" than others. None of these consequences is in any way "natural" or obvious or inevitable—yet the enduring and pervasive reach of the synecdoche has ensured that all of them have seemed more or less "obvious" for several thousand years of western culture.

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[55] Cf. Aristotle's remarks on the ambiguous nature of the sea-tortoise, *Parts of Animals* 3.8 (671a15–25).

[56] See: 20.227–28 (ass's); 20.232 (goat's); 20.242 (horse's); 20.244 (ox's, cow's); 20.255 (wild she-goat's); 28.87–88 (elephant's); 28.111 (crocodile's); 28.151 (stag's); 28.152 (boar's); 28.162 (goat's); 28.170 (goat's); 28.177 (bull's!); 28.196 (kid's); 28.197 (goat's and wild-horse's); 28.202 (stag's, hare's, goat's); 28.207 (goat's); 28.209 (kid's); 28.216 (goat's); 28.217 (bear's, horse's, ox's); 28.220 (bull's!).

[57] Pliny 28.4; perhaps a rhetorical exaggeration, since he later records that blood extracted in phlebotomy is used to revive epileptics from their fit, 28.43.

[58] Galen, *Simples* 10.2 (12.253–263 K.).

[59] K. F. Kitchell, Jr. and L. A. Parker, "Death by Bull's Blood: A Natural Explanation," in *Alpha to Omega: Studies in Honor of George John Szemler on his Sixty-Fifth Birthday*, ed. W. J. Cherf (Chicago: Ares, 1993), 123–41.

[60] See e.g., Herodotos 3.15.4; Aristophanes, *Knights* 83; Nikandros, *Alexipharmaka* 312–18; Scribonius Largus §196; etc.

[61] See e.g., Sophocles, *Trachinians* 555–81, 672–722, 749–806, 1046–63; Horace, *Epodes* 17.30–32; etc.

[62] Horace, *Epodes* 3.6–7: *num uiperinus his cruor / incoctus herbis me fefellit?* (viper's); and Juvenal 1.70, 6.659 (toad's). In addition, Pliny 28.147–148 records that the blood of horses and goats was regarded as poisonous.

3 The "bloodline" Metonym

Distinct from the "lifeblood" synecdoche are many Greek (and Roman) texts that speak of blood as somehow mediating lineage. If the "lifeblood" synecdoche is not "natural," the metonym of "bloodline" is simply weird. What has blood to do with lineage? Despite its pervasive reach into modern European languages, it is a most peculiar figure—and yet it seems so inevitable that scholars have been almost entirely silent. This figure is also pervasive and persistent in antiquity, but only within Greco-Roman discourse, which begs the question whether it was an invention or an import. I will first trace its usage in Greek and Roman texts, and then argue that it was an import.

In Greek epic, we find that Zeus of Olympos, Glaukos of Lykia, Aineias of Troy, and Telemachos of Ithaca all have a descent and lineage "of blood."[64] That is also how Alkinoos kindly asks Odysseus to tell his own tale, inquiring whether some in-law, one of those "closest after blood and kin," fell at Troy (*Odyssey* 8.582–583). The same figure was deployed by Pindar, Aeschylus, Sophocles, and Herodotos—and indeed widely in Greek literature.[65] For example, the choros in Aeschylus' *Seven Against Thebes* calls upon Aphrodite for help, on the grounds that they are of her bloodline (141–143). In Herodotos, shared "blood" coheres with shared worship: "the kinship of all Greeks in blood and speech, and the shrines of gods and the sacrifices that we have in common, and the likeness of our way of life" (8.144.2).

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[63] M. Bergmann, "Metaphorical Assertions," *Philosophical Review* 91 (1982): 229–45; repr. in *Pragmatics: a reader*, ed. S. Davis (New York: Oxford University Press, 1991), 485–94.

[64] Zeus: *Iliad* 19.105, 111. Glaukos: *Iliad* 6.211. Aineias: *Iliad* 20.241. Telemachos: *Odyssey* 4.611, 16.300. Langholf, "Abstammung und Blut,“ 131–35 studies the epic texts and indicates that in them blood is a kind of "biogenetische Substanz."

[65] Pindar, *Nemean* 3.65, 6.15–16, 35–38, 11.33–34, and *Pythian* 4.48–49. Aeschylus, *Suppliants* 402, 474–75, *Seven* 415–16, 681, 939–40, and *Eumenides* 212, 653–654. Herodotos 1.74.5, 1.151.2, and 5.49.3. Sophocles uses it very often, so only a selection can be given: *Ajax* 1312,

These archaic Greek "bloodlines" often do not specify whether the blood flows from the mother, or the father, or both. Some of them were explicitly paternal, such as the descent from Zeus in the *Iliad* (19.105, 111), the common ancestry of Apollo and Hermes in Aeschylus (*Eumenides* 89–90), and the parentage of the brothers Ajax and Teuker in Sophocles' *Aias* (977, 1228–1231). That rules out menstrual blood as the referent of the figure. Nevertheless, some "bloodlines" were maternal, such as descent from Aphrodite in Aeschylus (above), or the parentage of Phaedra in Euripides, *Hippolytos* (339). Those show that "blood" was not understood as a figure for male "seed."

Romans also deployed this notion of bloodlines, in a more systematic way than the Greeks. Among numerous examples, first would be the epic history of Rome by Ennius, which contained the line praising their legendary founder Romulus as "father, begetter, and blood arising from the gods."[66] In Vergil's epic on the foundation of Rome, the Trojan Aeneas meets Evander, the Greek expatriate who will aid him in his conquest of Italy, and there Aeneas explains himself as Evander's distant blood-cousin: "two streams that divided from one blood."[67] Here, unusually for Latin texts, the bloodlines are maternal, passing through two daughters of Atlas, i.e., Evander from Maia and Aeneas from Electra. In Livy's narrative of early Rome, the tribune Canuleius proposed a law that would have allowed lower-class plebeians to marry upper-class patricians—the patricians were horrified at the prospect of "contaminating and polluting their blood" by "promiscuously mating like wild beasts" and "producing half-breeds."[68] They took the opportunity to start a war instead of allowing the law; despite that, the law was ultimately passed.

The Romans were more systematic than the Greeks—and they were more legalistic. The system of Roman laws based rulings about marriage and inheritance on the concept of "consanguinity." People could be "blood relatives"

Antigone 198, 512–13, *Trachinians* 1147, *Electra* 12–13, 325, *Oedipus the King* 639, 1405–06, and *Oedipus at Colonus* 245–46, 330.

[66] Ennius, *Annales* book 1, fr. 108 Skutsch: *o pater o genitor o sanguen dis oriundum!*

[67] Vergil, *Aeneid* 8.142: *sic genus amborum scindit se sanguine ab uno.*

[68] Livy 4.1.2 (*contaminari sanguinem*), 4.2.5–6 (*ferarum prope ritu … dimidius patrum … dimidius plebis*), and 4.4.6–7 (*polluit*).

either through father or through mother (or both, of course), and could inherit property on the basis of that "bloodline."[69]

In Greece and Rome, this figure was applied primarily to gods and heroes, and was also used to draw ethnic distinctions. The figure appears in Greek mainly in epic and tragedy, whose characters are gods and heroes, and such bloodlines can be "good" (for Telemachos) or even the basis for admonitions to noble behavior (for Teuker the brother of Aias).[70] Of the approximately sixty references to bloodlines in Greek epic and tragedy, only one can possibly refer to bloodlines other than divine or heroic: Aeschylus, *Suppliants* 224–225, of birds—as an omen, explained by analogy to the heroes.[71] Herodotos (above) and Plato (*Sophist* 268d, *Laws* 5.729c, 9.872e9), however, apply the figure to ordinary people, dividing Greeks from barbarians, or some Greeks from others, or clans from other clans.[72]

Roman writers also apply the figure to gods and heroes, to Romulus and Aeneas as we have seen, and Horace claims that doing so is characteristic of Pindar and praise poetry.[73] More so than Greeks, Romans exploit the figure of bloodlines to display ethnic differences. We have already seen how, in Livy, the law proposed by Canuleius raised the specter for the aristocrats of mixing their pure blood with the plebeian blood of the lower classes. Well before Livy composed his history, Cicero declared, "the blood of all Roman citizens must be considered as conjoined"[74]—just like Herodotos, who made the same claim about the Greeks (above). But when he wants to smirch an enemy, Cicero says he is less Roman by his foreign maternal blood.[75] Finally, Suetonius, in describing how Augustus wanted to grant citizenship only to the worthy, records that he advised, “the populace be preserved pure and uncorrupted from all influx of outsiders and servile blood.”[76] The two Greek writers, before and after Suetonius, who record the same policy, say nothing whatsoever about blood or purity:[77] perhaps the Roman writer invented the motivation.

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[69] Gaius in *Digest* 38.8.2. See also A.-C. Harders, "Agnatio, Cognatio, Consanguinitas: Kinship and Blood in Ancient Rome," in *Blood And Kinship: Matter for Metaphor from Ancient Rome to the Present*, ed. C. H. Johnson, B. Jussen, D. W. Sabean, and S. Teuscher (New York and Oxford: Berghahn, 2013), 18–39; P. Moreau, "Bilineal Transmission of Blood," in *Blood And Kinship: Matter for Metaphor from Ancient Rome to the Present*, ed. C. H. Johnson, B. Jussen, D. W. Sabean, and S. Teuscher (New York: Berghahn, 2013), 40–60.

[70] Telemachos in *Odyssey* 4.611: αἵματός εἰς ἀγαθοῖο. Teuker the brother of Ajax, in Sophocles, *Aias* 1304–1305: ἆρ᾽ ὧδ᾽ ἄριστος ἐξ ἀριστέοιν δυοῖν / βλαστὼν ἂν αἰσχύνοιμι τοὺς πρὸς αἵματος.

[71] There are also six in proverbial style ("gnomic"), whose application in context is specific to the heroes: Aeschylus, *Seven* 681; *Eumenides* 212; and *Suppliants* 651–52; Sophocles, *Antigone* 793–94; and Euripides, *Orestes* 684–85, 806.

[72] Similarly, Aristotle, *Nicomachean Ethics* 8.14 (1161b32) and *Politics* 2.3 (1262a11).

[73] Horace, *Odes* 4.2.13–14: *seu deos regesque canit, deorum / sanguinem.*

[74] In one of Cicero's early speeches, *Verrines* 2.5.172: *Nam ciuium Romanorum omnium sanguis coniunctus existimandus est*; also *On Duties* 1.54.

[75] Cicero, *Return to the Senate* §15: *quam longe hunc ab hoc genere cognatio materna Transalpini sanguinis abstulisset* (his enemy is less Roman by having Gaulish blood).

The metonym “bloodline” perfuses Greek and Roman discourse about lineage, and informs their ideas about descent from gods or heroes. When Greeks talk about “bloodlines,” they are making claims that are aristocratic or, in a few cases, ethnocentric.[78] Romans talk in a similar way, but their talk is more often ethnocentric.[79] They also establish the figure in their laws, regulating marriage and inheritance by blood (above).

But the figure “bloodline” is quite rare outside Greco-Roman culture. That means we might be able to cast some light on its source. There seems to be nothing similar in Egyptian, Hebrew, Persian, Sanskrit, or Chinese.[80] Hesiod may provide a hint, when he describes the castration by Kronos of his father Heaven: “… all the bloody splotches that gushed forth, Gaia received, and … she bore the … Furies and the … Giants … and the Nymphs….” (Heaven’s excised penis floats upon Ocean and gives birth to Aphrodite).[81] That provides a bloody lineage—but only for some divine beings, not for other gods, nor for humans. Hesiod’s tales often contain material from Mesopotamia,[82] and that is true here as well—the concept of blood lineage for the original humans (as well as for ordinary humans) is attested in Akkadian texts.[83]

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[76] Suetonius, *Augustus* 40.3: *sincerum atque ab omni colluuione peregrini ac seruilis sanguinis incorruptum seruare populum.*

[77] Dionysios of Halikarnassos, *Roman Antiquities* 4.24.4–8 (ca. 30 BCE) and Dio Cassius 56.33.3 (ca. 230 CE).

[78] Ethnocentric in the passages (cited above): Herodotos 1.151.2, 5.49.3, 8.144.2, and Plato, *Laws* 5 (729c).

[79] For divine and heroic bloodlines in Latin, see: Horace, *Odes* 4.2.13–14, cf. *Carmen Saeculare* 50. For ethnocentric bloodlines in Latin, see: passages cited above, plus Valerius Maximus 1.1.*ext.*2, 1.7.*ext.*1, 2.9.8, and 6.2.1; Tacitus, *Germania* 28.4, 39.1.

[80] It is of course impossible to prove a negative, but metaphors of descent in those cultures go in a different direction. On China, see K. E. Brashier, *Ancestral Memory in Early China* (Cambridge, Massachusetts: Harvard University Press, 2011), 18–34. On Egypt, see H. Brunner, “Abstammung,” in *Lexikon der Ägyptologie*, Vol. 1, ed. W. Helck and E. Otto (Wiesbaden: Harrassowitz, 1975), 13–18: lineage was a flexible ad hoc status. (The presumption that the “bloodline” metaphor is simply “natural” may have prevented studies on the topic.)

[81] Hesiod, *Theogony* 182–87: ὅσσαι γὰρ ῥαθάμιγγες ἀπέσσυθεν αἱματόεσσαι, / πάσας δέξατο Γαῖα ….

[82] W. Burkert, *The Orientalizing Revolution: Near Eastern Influence on Greek Culture in the Early Archaic Age*, trans. W. Burkert and M. E. Pinder (Cambridge, Massachusetts: Harvard University Press, 1992), 88–127; West, *The East Face of Helicon*, 276–333.

The parallel between Greek and Akkadian texts may be explained in several ways, but an origin in Mesopotamia seems the most likely. In fact, the concept is at home there, as is shown by a widely-attested Mesopotamian myth. Sumerian and Akkadian myth told how the gods created people from divine blood—this was an etiological myth, not an etymological one, and within it the gods themselves have no "blood lineage." The god Marduk makes an offer to the other gods, in the *Enūma Eliš*:[84]

> I will bring together blood and form bone,
> I will bring into being Lullû, whose name shall be 'man.'
> I will create Lullû—man
> On whom the toil of the gods will be laid that they may rest.

The same plan is referred to also in lines 31–34, when Ea actually carries out Marduk's plan, "From his blood Ea created mankind" (the blood comes from the slain rebel-god Qingu). In addition, the myth now known as *Atraḫasīs* tells a similar creation tale, in which the humans are created to labor for the gods:[85]

> Let one god be slaughtered,
> So that all the gods may be cleansed in a dipping.
> From his flesh and blood
> Let Nintu mix clay,
> That god and man
> May be thoroughly mixed in the clay.

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[83] See CAD s.v. "*damu*" (D, pp. 75–80), §3 (p. 79); noted by W. Burkert, "Blutsverwandtschaft: Mythos, Natur, und Jurisprudenz," in *Mythen des Blutes*, ed. C. von Braun and C. Wulf (Frankfurt and New York: Campus, 2007), 249.

[84] *Enūma Eliš*, tablet 6, lines 5–8, in the translation of W. G. Lambert, *Babylonian Creation Myths* (Winona Lake, Indiana: Eisenbrauns, 2013), 111.

[85] *Atraḫasīs*, I 208–13, in the translation of W. G. Lambert, A. R. Millard, and M. Civil, *Atraḫasīs: The Babylonian Story of the Flood* (Oxford: Clarendon Press, 1969), 59. Lines 223–26 describe the accomplishment of the plan: "Wê-ila, who had personality / they slaughtered in their assembly. / From his flesh and blood / Nintu mixed clay." See also J. Bottéro, "La création de l'homme et sa nature dans le poème d'Atraḫasîs," in *Societies and Languages of the Ancient Near East: Studies in Honour of I. M. Diakonoff*, ed. M. A. Dandamayev et al. (Warminster: Aris and Phillips, 1982), 24–32.

The *Atraḫasīs* was composed about 1800 BCE, and the *Enūma Eliš* around 1100 BCE, but both were copied and read up through the end of the 7th century BCE; they occupied the same space in their culture as did Homer among the Greeks, or Shakespeare among the British. The story about divine blood was still available to Berossos of Babylon, writing in Greek ca. 300 BCE.[86]

Thus, a Mesopotamian myth, about the creation of humans from the blood of gods, generated in Akkadian the figural sense "lineage" for "blood," which afterwards entered Greek. That is, the mixed nature of divine blood and mortal clay that the first humans received when created was thereafter inherited: like parent, like child.

An import is not unlikely, and indeed, West Asiatic elements in early Greek culture are widespread enough to be undeniable.[87] The Greeks themselves told tales of immigrations, of Kadmos the Phoenician coming to Thebes,[88] and of the new god Dionysos entering Greece from the east.[89] Only transmission could explain these prominent items: the alphabet (including the order, the shapes, and the sounds of twenty letters, and the names of fifteen of those letters),[90] the papyrus roll and book,[91] the images perceived as constellations (both on and off the ecliptic),[92] the techniques of iron-working,[93] dining while reclining,[94] and wearing the χιτών.[95] It is hard to picture Greek culture as Greek without Dionysos, without dining couches, without chitons, without the alphabet, without book-rolls, and so on. That is to say, core cultural practices may have exogenous origins.

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[86] G. de Breucker, "Berossos of Babylon (680)," in *Brill's New Jacoby*, ed. I. Worthington (2012), fragments 1a and 1b, http://referenceworks.brillonline.com/entries/brill-s-new-jacoby/berossos-of-babylon-680-a680 (accessed September 15, 2017). A distant echo of the tale may be found in the account of the creation of humans from the ashes of the Titans, preserved by Olympiodoros, *Commentary on Plato Phaedo* §3 and §6–14; cf. also *Homeric Hymn to Apollo* 336–37 "Titans from whom are people and gods."

[87] J. P. Brown, *Israel and Hellas*, Vol. 1, Beihefte zur Zeitschrift für die alttestamentliche Wissenschaft 231 (Berlin: de Gruyter, 1995), 106–133; West, *The East Face of Helicon*, esp. viii: "You cannot argue against the fact that it is raining [i.e., there are west Asiatic elements in Greek culture] by pointing out that much of the sky is blue [i.e., much Greek culture is native]."

[88] Herodotos 2.49.3, 4.147.4–5; etc.; West, *The East Face of Helicon*, 448–50.

[89] Herodotos 2.49 ("newly imported" and note the connection to Kadmos), 2.145 ("youngest of the gods"); Euripides, *Bacchae* 1–42, 55–61, etc.

[90] Herodotos 5.58–59; L. H. Jeffery, *Local Scripts of Archaic Greece*, 2nd ed. with addenda (Oxford: Clarendon Press, 1990), 1–42; B. Sass, *The Alphabet at the Turn of the Millennium* (Tel Aviv: Tel Aviv University, 2005), 133–52.

[91] Burkert, *The Orientalizing Revolution*, 30–31; West, *The East Face of Helicon*, 25–26.

[92] B. E. Schaefer, "The Latitude and Epoch for the Formation of the Southern Greek Constellations," *Journal for the History of Astronomy* 33 (2002): 313–50.

[93] Aeschylus, *Prometheus Bound* 714–15; Herodotos 1.28; J. D. Muhly, R. Maddin, T. Stech, and E. Özgen, "Iron in Anatolia and the Nature of the Hittite Iron Industry," *Anatolian Studies* 35 (1985): 67–84.

Moreover, many scholars have pointed out connections between Greek and southwest Asiatic religious practice and mythic tales. The divine allotment of the three kingdoms of Sky, Sea, and Hades, in the *Iliad*, book 15, is closely paralleled by, and probably originates in, the *Atraḫasīs*.[96] The *Epic of Gilgameš* tablet 6, where the rejected Ištar complains to Anu, is exactly parallel to the duel between Diomedes and Aphrodite in *Iliad* book 5, after which the wounded Aphrodite complains to Zeus.[97] Greeks were relatively open to imports from West Asia, with several early Greek writers claiming to have visited and studied the area, including Antimenidas, the brother of the poet Alkaios, who served as a mercenary in Babylon.[98] Cyprus in particular seems to have been a large zone of intense cultural interaction between Greeks and Phoenicians, and itinerant experts from Western Asia may have played a role in transmitting tales.[99]

So an Akkadian myth is the source, direct or indirect, of the "bloodline" figure. But in any case, the figure is not universal, or inevitable, or obvious, and certainly not in any sense "natural." Nevertheless, the "bloodline" figure, like the "lifeblood" synecdoche, was productive of further figural developments. First, to speak about lineage by speaking about blood focuses the mind on some fixed entity that is preserved, rather than on the process of reception and transformation of attributes or characteristics. Second, because blood is actually observed primarily in medical contexts, conceiving of lineage as mediated by blood opens a channel for conceiving of lineage as healthy, or diseased. Finally, because blood in Greek thought also plays a role in cleansing and in polluting, conceiving of lineage as mediated by blood opens a channel for conceiving of lineage as "pure" or as "polluted." That outcome we have already seen in the reaction of the upper classes to the prospect of mating with plebeians, and in Augustus' advice against allowing immigrants to pollute Roman blood. The "bloodline" metonym was pervasive and persistent in Greek and Roman thought, and as we will see, productive of further figurations, especially in a confluence with the "lifeblood" synecdoche.

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[94] *Amos* 6.4–7 (ca. 750 BCE: reclining) in contrast to *Odyssey* 9.5–11 (sitting); J.-M. Dentzer, *Le motif du banquet couché dans le Proche-Orient et le monde grec du VIIe au IVe siècle avant J.-C.* (Paris and Rome: Ecole Française de Rome, 1982), 51–69; W. Burkert, "Oriental Symposia: Contrasts and Parallels," in *Dining in a Classical Context*, ed. W. J. Slater (Ann Arbor: University of Michigan Press, 1991), 7–24.

[95] *Odyssey* 15.60; Brown, *Israel and Hellas*, Vol. 1, 204–09; West, *The East Face of Helicon*, 14.

[96] *Iliad* 15.187–93; see Burkert, *The Orientalizing Revolution*, 90–91; West, *The East Face of Helicon*, 109–10.

[97] *Iliad* 5.330–431; see Burkert, *The Orientalizing Revolution*, 96–99; West, *The East Face of Helicon*, 360–62.

[98] Alkaios, fragment 350 Lobel-Page, in Strabo 13.2.3.

[99] For Crete, see W. Burkert, "Rešep-Figuren, Apollon von Amyklai und die 'Erfindung' des Opfers auf Cypern," *Grazer Beiträge* 4 (1975): 51–79. For itinerant experts, see Burkert, *The Orientalizing Revolution*, 9–40.

4 Blending the Figures

The two distinct figures, "lifeblood" and "bloodline," existed separately and pervasively in early Greek literature, but did not remain always distinct. The incremental process by which they merged can be traced, from the Hippocratic corpus, tragedy, and philosophy, culminating in the works of Aristotle. The process is a kind of "conceptual blending," as in the example given by Aristotle (*Rhetoric* 3.3, 1406b15–19), when Gorgias is said to have blamed the flying swallow (χελιδών) that shat upon him: "Shame on you, Philomela!" The act is impossible for the girl Philomela (who had no wings) and the shame is impossible for the swallow (who, for Aristotle anyway, had no mind), so that the emergent meaning exists only in the blend.[100] The blend created by the ancient Greeks from "lifeblood" and "bloodline" likewise uses elements from the frames of both figures, i.e., it is a "double-scope" blend:[101] from the "lifeblood" synecdoche the blend takes that "blood is vital, and has power," and from the "bloodline" metonym the blend takes that "blood embodies lineage."

Let us begin with a late-fifth-century BCE text on human reproduction.[102] Menstrual blood is compared by one of the Hippocratic authors to the fresh lively blood of a sacrificial victim, which would be an animal selected for its robust health.[103] The same author is one of the earliest to concoct a theory that retained menstrual blood nourished the fetus during pregnancy.[104] That author also claimed that both men and women contribute "seed" to their child, a seed distinct from the blood of either, and in fact said to be drawn from all parts of the body.[105]

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[100] G. Fauconnier and M. Turner, *The Way We Think: Conceptual Blending and the Mind's Hidden Complexities* (New York: Basic Books, 2002), 36–37. In the myth, Philomela was transformed into a swallow.

[101] *Ibid.*, 131–35.

[102] For the date, see Lonie, *The Hippocratic Treatises "On Generation," "On the Nature of the Child," "Diseases IV,"* 71.

[103] As above, *Nature of the Child* §18 (Littré 7.502).

[104] As above, *Nature of the Child* §14–16 (Littré 7.492–496).

If blood nourishes the whole body, and all parts grow from blood, it is a small step to say that semen is produced from blood. Two Greek philosophers of the 5th century BCE are attested to have said so. In the system of Parmenides, it was the “powers” of the male and female semen that effected the outcome of conception.[106] In the system of Diogenes of Apollonia, it was the air contained in semen that did the work of lineage.[107] So in each case, it was the properties and nature of semen that mediated lineage, not the substance or materials from which it was made. For Diogenes, blood was indeed “lifeblood,” but only in so far as it carried air, the true source of life and thought, through the body.

The way was open, however, to merge the two figures. The earliest evidence for this merging seems to be in Aeschylus’ *Oresteia* trilogy (456 BCE), where the choros “prove” that Orestes is related by “blood” to the mother he murdered—because she nourished him inside her (*Eumenides* 605–608). Apollo, however, rejects the choros’ claim (658–661), and the plot requires that rejection.

Several generations after Diogenes, the philosopher Aristotle also adopted the theory of nourishing menstrual blood, and indeed fused it with the figure of “bloodlines.” As so often, Aristotle is eager to validate all opinions held by respectable people, so far as he can manage.[108] Thus, as Plato and others had said, blood nourishes the body, and all parts of the body are fed by blood (above). Therefore also semen must derive from blood.[109]

In Aristotle’s system, however, the material and efficient causes of a given outcome may be plural—but the formal cause and the final cause must each be singular. That meant that Aristotle wished to find a singular formal cause for conception, which he believed he had in male semen. That in turn led him to reject any possibility that females contribute seed. Instead he drew an analogy between male semen and female blood, the two contributions that combine to produce offspring.[110] What is peculiar here is that blood, from the female, contributes only the "matter," whereas semen, from the male, contributes only the "form," although, according to Aristotle, semen corresponds to "fully" concocted blood.[111] Aristotle has thus transvalued blood lineage so that it is purely "spiritual"—and is carried by what is no longer merely blood.

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[105] *Nature of the Child* §3–8 (Littré 7.474–482).

[106] Parmenides, fragment B18 DK^6: *diuerso ex sanguine uirtus … uirtutes.*

[107] Diogenes, fragment B6 DK^6: τὸ δ’ αἷμα τὸ μὲν … ὑπερβάλλον δὲ εἰς λεπτὸν καὶ θερμὸν καὶ ἀφρῶδες γίνεται.

[108] As in *Topics* 1.1 (100a20–24), *On Heaven* 1.10 (279b4–14), and *Nicomachean Ethics* 7.1 (1145b2–7); cf. L. Vega Renon, “Aristotle’s *Endoxa* and Plausible Argumentation,” *Argumentation* 12 (1998): 95–113.

[109] *Generation of Animals* 1.18 (724b28–725a21), 1.19 (726b2–23); cf. E. Lesky, *Die Zeugungs- und Vererbungslehren der Antike und ihr Nachwirken*, Abhandlungen der Geistes- und Sozialwissenschaftlichen Klasse 19 (Wiesbaden: Akademie der Wissenschaften und der Literatur in Mainz, 1950), 125–59.

Aristotle also introduced a "ladder of blood,"[112] parallel to his "ladder of being" (the infamous scala naturae). In this ladder, human blood is of course the best and purest of all, and therefore humans are the wisest animals. Human blood itself also differs in quality, and is purest in the middle of the three ventricles of the heart that Aristotle thought he had observed. Although Aristotle does not explicitly "grade" people by the quality of their blood, it is a very small step from his account, of grades of blood, to one in which differences in people's blood "explain" differences in the people themselves. What was possible in Greece was done in Rome: Horace refers to the "accursed" blood of his own impious generation, and Pliny says that "fatter" blood makes for angrier people.[113] We saw above how both Greeks and Latins used the figure of "bloodlines" to divide ethnic groups, whether Ionians, say, from other Greeks, or else patrician Romans from plebeian Romans. We also saw how there are "good" bloodlines, in the *Iliad*, and how bloodlines can be "pure" or else "polluted," in Livy. The blended figure absorbs all those divisive notions about blood.

In some of the Latin texts using the figure "bloodline," the path of lineage is described as a stream that is flowing, and either dividing or merging.[114] Likewise, streams of water are depicted as merging and mixing, with each other—and sexually with humans.[115] "Bloodlines" that were "mixed" were of course actually mixed of seed, not of blood. But sexual intercourse was regularly described as "mixing" in Greek—and that opened the way to think of sex as inherently "mixed," i.e., inherently impure. Plutarch, Porphyry, and many others did take that way.[116]

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[110] *Generation of Animals* 1.19–20 (726b30–729a33); cf. L. Dean-Jones, "Clinical Gynecology and Aristotle's Biology: The Composition of *HA* X," *Apeiron* 45 (2011): 180–99.

[111] *Generation of Animals* 1.21 (729a34–b20), 1.22 (730b9–24), 2.1 (733b24–734b3), and 2.3 (736a24–737a34).

[112] Above, the citation of Aristotle, *History of Animals* 3.19 (520b10–521b3). See also: *Respiration* 19 (477a21–23), *Parts of Animals* 2.3–4 (650a2–651a19); and for the purest human blood, see: *Parts of Animals* 3.4 (667a1–6).

[113] Horace, *Epodes* 16.9 ("*inpia perdemus deuoti sanguinis aetas*"); and Pliny 11.221 ("*sanguis quibus multus et pinguis, iracundi*")—although Pliny is mostly paraphrasing Aristotle, *History of Animals* 3.19 (520b10–521b3), this is not from Aristotle.

[114] Above, Vergil, *Aeneid* 8.142 (*scindit*); see also Lucretius 4.1212–1214 (*miscentes*); and Valerius Maximus 2.9.6 (*conflueret*).

[115] See, e.g., H. Pelliccia, "Aeschylean ἀμέγαρτος and Virgilian inamabilis," *Zeitschrift für Papyrologie und Epigraphik* 84 (1990): 188–90.

Presumably there were degrees of difference, so that "merging" between couples of the same group would be less polluting than "merging" between couples drawn from different groups. That seems already to have been in view in the passage of Livy quoted above, where the upper class was "polluted" by "merging" with the lower class.

However, bloodlines of distinct species seemed sufficiently distinct that crossbreeds were not described in terms of mixing blood. Thus when Aristotle attempts to explain such things as mules or legendary monstrosities, he makes no use whatsoever of the concept of bloodlines.[117] Instead, he argues that creatures that are sufficiently similar can manage to mate, but just barely—e.g., dogs and foxes, or else horses and donkeys—but their union is sterile. Another kind of cause for monstrosities, he claims, is a defect in the material (i.e., the blood supplied by the female), and that—obviously!—is what causes things like two-headed snakes, or goats with misplaced horns, or hermaphrodites.

Blood, as symbolic of life, and also as symbolic of membership, is dyed into the very fabric of Christianity. The narratives of Jesus' last days report that he shared a cup of wine with his disciples, saying, "this is my blood of the covenant" (τὸ αἷμα μου τῆς διαθήκης).[118] Within a generation of his death, Paul of Tarsos wrote to the church in Corinth that the shared reenactment of that drink was "participation in the blood of Christ" (*I Corinthians* 10.16: κοινωνία ἐστὶν τοῦ αἵματος τοῦ Χριστοῦ). The *Gospel of John* 6.53–56, asserts that Christians really drink blood:

> (53) If you do not eat the flesh of the son of man and (do not) drink his blood, you will not have Life in yourselves. (54) Whoever eats my flesh and drinks my blood has eternal Life, and I will raise him up on the last day: (55) for my flesh is true food, and my blood is true drink. (56) Whoever eats my flesh and drinks my blood remains in me and I in him.

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[116] Plutarch, *Table-Talk* 8.5 (725cd); and Porphyry, *Abstinence* 4.20 (cf. 1.40–45 and *Cave of the Nymphs* §11).

[117] Aristotle, *Generation of Animals* 2.7–8 (746a29–749a6) and 4.3–4 (769b11–773a31); cf. Horace, *Epodes* 16.29–34, where tigers mate with deer, and cattle with lions.

[118] *Gospel of Mark* 14.22 ≈ *Gospel of Matthew* 26.28; cf. *Gospel of Luke* 22.20 and Paul of Tarsos, *I Corinthians* 11.24.

> (53) ἐὰν μὴ φάγητε τὴν σάρκα τοῦ υἱοῦ τοῦ ἀνθρώπου καὶ πίητε αὐτοῦ τὸ αἷμα, οὐκ ἔχετε ζωὴν ἐν ἑαυτοῖς. (54) ὁ τρώγων μου τὴν σάρκα καὶ πίνων μου τὸ αἷμα ἔχει ζωὴν αἰώνιον, κἀγὼ ἀναστήσω αὐτὸν τῇ ἐσχάτῃ ἡμέρᾳ· (55) ἡ γὰρ σάρξ μου ἀληθής ἐστιν βρῶσις, καὶ τὸ αἷμά μου ἀληθής ἐστιν πόσις. (56) ὁ τρώγων μου τὴν σάρκα καὶ πίνων μου τὸ αἷμα ἐν ἐμοὶ μένει κἀγὼ ἐν αὐτῷ.

Clement of Rome taught that the blood of Christ purified his followers (*Letter to Corinth* 12.7: διὰ τοῦ αἵματος τοῦ κυρίου λύτρωσις), and Ignatius of Antioch elevated the drinking of the blood of Christ into participation in divine love.[119]

The blended figure was indeed very fecund to think with. It led Greeks and Romans to imagine they could establish a basis for perceived differences among people, whether of class or ethnicity or temperament. Especially it led to Romans perceiving foreigners as being of "different blood," and to viewing marriage between people of bloodlines of different "quality" as the "pollution" of the "better" blood. Moreover, it became part of the core belief of the religion that came to dominate the later Roman Empire, and its lineal descendant, the Byzantine Empire.

5 The Long and Bloody Trail

Now, looking forward instead of backward, it seems that the concept of "blood lineage" has endured overlong without examination in our culture. This chapter claims to contribute to the struggle against the fascination that forms of expression hold over us—and the struggle will have advanced if the chapter has shown how these two blended metaphors, of "lifeblood" and "bloodlines," though ancient and classical, and very rich indeed, are neither natural nor obvious. Perhaps they will seem even less familiar, when we re-read the history of following bloody centuries. The sketch is all too brief, and the complexities of almost two millennia of history across multiple cultures are necessarily elided.

Powerful regimes that defeat their neighbors often enslave the captives, an outcome that usually leads to stereotyping of the enslaved. In some cases this stereotyping has been expressed in terms of a "blood" ancestry. From an early date, a mythic narrative, the infamous tale of the "sons of Ham," validated Jewish stereotyping of foreign slaves.[120] This had been applied originally to the defeated native Canaanites of Palestine, and in the early centuries of the Common Era was applied to then-available slaves (Syrians, e.g.).[121] There was however a Jewish law that prohibited enslavement of fellow-Jews (*Leviticus* 25.39–46). That slaves ought to be foreigners was also argued by Aristotle, in the *Politics*, based however on the ideology that they were mentally inferior.[122] The correlation of the three sons of Noah (Japheth, Shem, and Ham) to regions of the world varied over time, and at the end of Greco-Roman antiquity, Isidore of Sevilla defined the "Sons of Ham" as all Africans, north and south, plus Arabs and Palestinians.[123] Within the Christian Roman, i.e., Byzantine Empire, slavery was seen as part of the sinful state of the world, and Christian slaves received no special treatment.[124] The expansion of Islam to some degree protected western Asian and northern African peoples from the Mediterranean slave trade—so that in the 8th century CE the typical Islamic referent for "Sons of Ham" was inhabitants of Africa south of the Sahara, which then by ca. 1000 CE became the primary source of slaves for the realm of Islam.[125] Blood flowed through most of the thinking of the western Medieval period, as symbol of health, purification, and lineage.[126] Economic and political factors played a large role as well, but the myth, modified over the centuries, continued to wield power.

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[119] *Letter to Rome* 7.3 (πόμα θέλω τὸ αἷμα αὐτοῦ, ὅ ἐστιν ἀγάπη ἄφθαρτος) and *Letter to Tralleis* 3.8 (ἐν ἀγάπῃ, ὅ ἐστιν αἷμα Ἰησοῦ Χριστοῦ).

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[120] W. M. Evans, "From the Land of Canaan to the Land of Guinea: The Strange Odyssey of the 'Sons of Ham,'" *The American Historical Review* 85 (1980): 15–43.

[121] Ambrose of Milan (ca. 385 CE), *On Noah and the Ark* §3–5 (Ham bad, Shem good), §105–06 and §119–21 (Canaan son of Ham is accursed). See D. H. Aaron, "Early Rabbinic Exegesis on Noah's Son Ham and the So-Called 'Hamitic Myth,'" *Journal of the American Academy of Religion* 63 (1995): 721–59.

[122] *Politics* 1.3–1.6 (1253b13–1255b40); the scholarship is immense, but see, e.g., V. J. Rosivach, "Enslaving Barbaroi and the Athenian Ideology of Slavery," *Historia Zeitschrift für Alte Geschichte* 48 (1999): 129–57; P. Millett, "Aristotle and Slavery in Athens," *Greece & Rome* ns 54 (2007): 178–209.

[123] The same system is found in: Josephus, *Jewish Antiquities* 1.109–50; Jerome, *Hebrew Questions on Genesis* 10 (ca. 400 CE), on which see C. T. R. Hayward, ed., *Saint Jerome's Hebrew Questions on Genesis* (Oxford: Oxford University Press, 1995), 138–42; and Isidore of Sevilla (630 CE), *Etymologies* 7.6.19–22, 9.2.10–25.

[124] M. M. Bergadá, "La condamnation de l'esclavage dans l'Homélie IV," in *Gregory of Nyssa: Homilies on Ecclesiastes: An English Version with Supporting Studies*, ed. S. G. Hall (Berlin: de Gruyter, 1993), 185–96; K. Harper, *Slavery in the Late Roman World, AD 275–425* (Cambridge: Cambridge University Press, 2011), 473; rejecting the theory of M. Bloch, "Comment et pourquoi finit l'esclavage antique," *Annales. Histoire, Sciences Sociales* 2/1 (1947): 30–44, and 2/2 (1947): 161–70.

[125] B. Lewis, *Race and Color in Islam* (New York: Harper and Row, 1971), 11–74; J. H. Sweet, "The Iberian Roots of American Racist Thought," *William and Mary Quarterly* s3, 54 (1997): 143–66.

Meanwhile, phlebotomy and beliefs about "lifeblood" persisted in tension, up through the period 1832 to ca. 1860, when phlebotomy was largely abandoned as a therapy.[127] Scholars debate the causes of this decline, but the "lifeblood" synecdoche outlived phlebotomy, just as it had preceded it.

The same notions about bloodlines, based ever more explicitly on "blood" lineage and heritage, also led to the "blood-purity" ideology of Imperial Spain,[128] the French "Code Noir" regulating colonial slavery,[129] the complex rules about ancestry in the slavocracy of the Confederacy (which led to the Jim-Crow-era "one-drop" laws),[130] and then the Nazi propaganda and destruction directed against the Jews. Nor is it only in the exceptional state that blood figures pervade the modern world. The concept of "hypodescent," where a single ancestor, either on any branch, or else on a strictly paternal or maternal line, often serves to define the status of the descendant—and thus the continued practice of defining as "black" anyone with even a single known "black" ancestor.[131] Words based on these figures persist in common use and thought—as shown in Fig. 6.1. The irony is that a myth explaining how humans were created from

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[126] B. Bildhauer, "Medieval European Conceptions of Blood: Truth and Human Integrity," *Journal of the Royal Anthropological Institute, Supplement* (2013): S57–S76.

[127] J. S. Haller, Jr., "Decline of Bloodletting: A Study in 19th-Century Ratiocinations," *Southern Medical Journal* 79 (1986): 469–75.

[128] J. Fayard and M.-C. Gerbert, "Fermeture de la Noblesse et Pureté de Sang en Castille à travers les procès de hidalguía au XVIème siècle," *Histoire, économie et société* 1 (1982): 51–75.

[129] J. K. Schafer, "Roman Roots of the Louisiana Law of Slavery: Emancipation in American Louisiana, 1803–1857," *Louisiana Law Review* 56 (1995): 409–22; A. Watson, "The Origins of the Code Noir Revisited," *Tulane Law Review* 71 (1997): 1041–72.

[130] D. J. Sharfstein, "Crossing the Color Line: Racial Migration and the One-Drop Rule, 1600–1860," *Minnesota Law Review* 91 (2006/7): 592–656; P. Savy, "Transmission, Identité, Corruption: Réflexions sur trois cas d'hypodescendance," *L'Homme* 182 (2007): 53–80; D. J. McInerney, "'A State of Commerce': Market Power and Slave Power in Abolitionist Political Economy," *Civil War History* 37/2 (1991): 101–19.

[131] J. Halberstadt, S. J. Sherman, and J. W. Sherman, "Why Barack Obama Is Black: A Cognitive Account of Hypodescent," *Psychological Science* 22 (2011): 29–33; A. K. Ho, J. Sidanius, D. T. Levin, and M. R. Banaji, "Evidence for Hypodescent and Racial Hierarchy in the Categorization and Perception of Biracial Individuals," *Journal of Personality and Social Psychology* 100 (2011): 492–506; and A. R. Krosch et al., "On the Ideology of Hypodescent: Political Conservatism Predicts Categorization of Racially Ambiguous Faces as Black," *Journal of Experimental Social Psychology* 49 (2013): 1196–203.

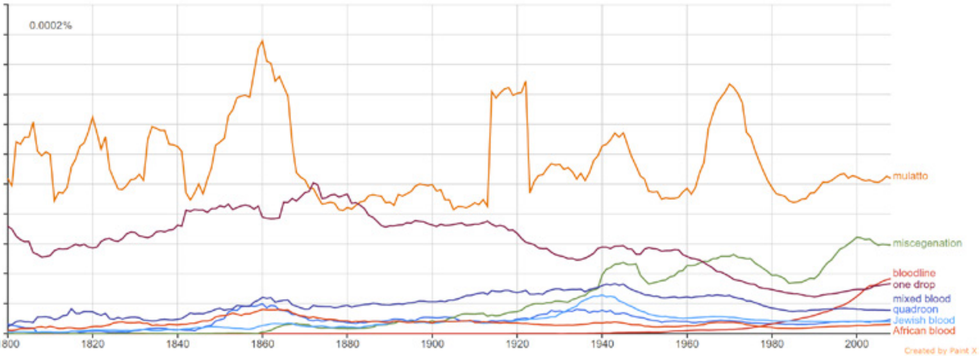

FIGURE 6.1 *Google N-grams (https://books.google.com/ngrams), for English, 1800–2008. Phrases "blood relative" and "blood heritage" have much smaller values than displayed.* Oxford English Dictionary, *s.v., "miscegenation": cited from 1864.*

divine blood, in order to serve as slaves to the gods, metastasized into a warrant for some humans to enslave or even destroy others. A bloody lineage indeed.[132]

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CHAPTER 7

Eye Metaphors, Analogies and Similes within Mesopotamian Magico-Medical Texts*

Strahil V. Panayotov

This chapter presents a study of Mesopotamian figurative language regarding therapy and anatomy, by means of analyses and classifications of metaphors, analogies and similes pertaining to the human eye. Examples are chosen predominantly from the Nineveh Medical Encyclopaedia on eye disease (7th century BCE), established for the Royal library of Ashurbanipal, but also from diagnostic texts, lexical lists, incantations and explanatory commentaries. Remarkably, Mesopotamian figurative language describing eye afflictions and anatomy is sometimes surprisingly similar to modern medical metaphors, due to the fact that ancient and modern languages employ some common explanatory techniques. Mesopotamian figurative language, therefore, gives us insight into themes and tropes early in the continuity of documented medical history on the eye.

1 Introduction

Mesopotamian doctors did not inherit as developed a Latin medical vocabulary as their modern colleagues. In the development of Mesopotamian medicine, ancient healers had to acquire medical vocabulary on their own, obtaining it from nature and culture that surrounded them. Ideas and terminology about flora and fauna, as well as those describing social interactions

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and material culture, supplied figurative language for describing the anatomy and pathology of the sick eye. Metaphors, analogies and similes provided the framework for interpreting a wide variety of medical conditions, involving the colour of the eye, blood deposits in the eye, the general appearance of the eye, 'granule' or foreign objects in the eye, eye sores, and atypical eye movements.[1] Cuneiform textual sources on these topics date to the second and mostly first millennium BCE, and they include medical incantations, therapeutic prescriptions, short rituals, lexical lists,[2] as well as diagnostic texts.[3]

Though we are correct to suppose that these textual compositions reflect the perceptions and voice of physicians more so than patients, it is highly likely that patients also were familiar with metaphors used in conceptualizing eye disease and therapy, since medical incantations[4] and healing rituals were performed on them and in their presence. Whereas figurative language, elaborate imagery, and metaphorical extensions of vocabulary[5] were prominent features in incantations, they played a much less significant role in therapeutic prescriptions. This may be attributed to the fact that the latter comprised technical instructions for preparing, e.g., ointments or potions necessary for therapy, rather than protocols for verbal contact between physician and patient. While medical incantations

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(i.e. series) in the British Museum are collated. The line numbering is according to the copies of F. Köcher, Die babylonisch-assyrische Medizin in Texten und Untersuchungen. Vol. I–VI (Berlin: de Gruyter, 1963–1980). Critical edition of the Nineveh eye disease treatise is in preparation by Mark Geller and the present author, and will be published by de Gruyter in the series Die babylonisch-assyrische Medizin in Texten und Untersuchungen, vol. 10.

[1] Cf. the metaphors and analogies employed in oil divination in G. Pettinato, *Die Ölwahrsagung bei den Babyloniern*, Band I (Rome: Instituto di Studi del Vicino Oriente, 1966), 149–51.

[2] É. Couto-Ferreira, "Etnoanatomía y partonomía del cuerpo humano en sumerio y acadio. El léxico Ugu-mu," Ph.D. Diss., Universitat Pompeu Fabra, Barcelona, 2009, 129–49; M. Civil, *The Lexical Texts in the Schøyen Collection* (Bethesda, Maryland: CDL Press, 2010), 148–62.

[3] N. P. Heeßel, "Diagnostische Texte," in *Texte aus der Umwelt des Alten Testaments, Neue Folge* 5: *Texte zur Heilkunde*, ed. B. Janowski et al. (Gütersloh: Gütersloher Verlagshaus, 2010), 8–30; A. R. George, *Babylonian Divinatory Texts Chiefly in the Schøyen Collection* (Bethesda, Maryland: CDL Press, 2013), no. 15.

[4] M. J. Geller, "Incantations within Akkadian Medical Texts," in *The Babylonian World*, ed. G. Leick (London: Routledge, 2007), 389–98; M. J. Geller, *Ancient Babylonian Medicine: Theory and Practice* (Chichester: Wiley-Blackwell, 2010), 91–97.

[5] For metaphorical extensions in Hittite see H. A. J. Hoffner, "From Head to Toe in Hittite: The Language of the Human Body," in *"Go to the Land I Will Show You." Studies in Honor of Dwight W. Young*, ed. J. E. Coleson and V. H. Matthews (Winona Lake, Indiana: Eisenbrauns, 1996), 250–53.

involved prayers and appeals to healing deities, no less pertinent was their role in creating a connection between the healer and the patient, allowing (or even encouraging) the patient to visualize his or her problem in ways aligned with imagery presented by the healer. As a matter of fact, studies on the use of metaphors in modern medical practice reveal striking parallels, whereby physicians explain their patients' condition by inventing imaginary situations that are peripheral to, but illuminative of patients' real complaints.[6] As we will learn from *Examples 2–3, 5, 7, and 9–10* below, Mesopotamian healers employed similar communicative strategies with, presumably, similar results.

The figurative language of incantations addressed the patient on a psychological level,[7] working directly on his or her conscious and unconscious mind in a process that might be summarized as follows: (1) by visualizing the malady through metaphors, analogies and similes, the patient could take comfort in the fact that the illness was knowable and predictable; (2) the invocation of omnipotent healing deities relieved the patient; (3) the incantation functioned as an ancient placebo, which reassured the believing patient at the expense of little or no additional pain, which other forms of therapy might entail; (4) because incantations addressed the problem comprehensively and at its root cause, the patient was not left with unrealized sources of fear; (5) figurative language shaped one's conceptualization of the situation, and might even invent imaginary contexts that were more manipulable, imparting to the patient (via the healer) a sense of control over the malady. The whole process was implicit in the theory behind Mesopotamian medical incantations.

2 The Nineveh Treatise on Sick Eyes

The Nineveh Treatise on Sick Eyes is crucial for the study of Mesopotamian figurative language on the sick eye, since medical incantations that preserve elaborate descriptions of eye imagery are attested mainly at Nineveh. It is therefore helpful for us, first to explore the broad organization and discovered manuscripts of this treatise, before focusing more narrowly on its metaphors.

Multiple therapeutic treatments, incantations and rituals for sick eyes were organized and compiled in cuneiform tablet compositions during the seventh century BCE. The royal scribes working for King Assurbanipal (668–ca. 627 BCE) in Nineveh assembled a single treatise (or, series of tablets) on eye disease for the royal library.[8] This Nineveh Treatise on Sick Eyes (henceforth IGI)[9] combined older therapeutic prescriptions, incantations and rituals from at least one millennium earlier (see *Examples 2 and 3* below). The IGI corpus represented also part of a larger collection of anatomically ordered treatises comprising the Nineveh Medical Encyclopaedia. For recent research on IGI, the reader is advised to use an excellent translation and medical commentary of the Nineveh treatise prepared by the modern ophthalmologist, Dr. Annie Attia.[10]

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[6] D. Casarett et al., "Can Metaphors and Analogies Improve Communication with Seriously Ill Patients?" *Journal of Palliative Medicine* 13 (2010): 256.

[7] M. J. Geller, "Freud and Mesopotamian Magic," in *Mesopotamian Magic: Textual, Historical, and Interpretative Perspectives*, ed. T. Abusch and K. van der Toorn (Groningen: Styx, 1999), 49.

The title of IGI comes from the 'incipit' (i.e., first line) of the first tablet (i.e. chapter) of the treatise: "If a man's eyes are sick." Not only was this treatise known at Nineveh, its title was also recorded on an important tablet catalogue of medical works from another Assyrian city, Assur. JoAnn Scurlock partially published the first part of the Assur Medical Catalogue (henceforth AMC), reconstructing only three tablets of the IGI treatise,[11] but unfortunately overlooked a fragment of AMC from Chicago,[12] which had been discovered by Irving Finkel in 1978 and was crucial for properly understanding the organization of IGI.[13]

A 7821: 3′–5′ (*Chicago Fragment*) (+) GS *Sachs 9a: 8–10* (*the parts from A 7821 are in bold*)

AMC 8	**DIŠ NA IGI^{II}-*šú* ⸢GIG:⸣ D**[IŠ NA IGI^{II}-*šú mur-din-n*]***i*** ⸢DIRI$^{?}$⸣
AMC 9	**DIŠ NA IGI^{II}-*šú* LÙ.LÙ** [: DIŠ NA$^{?}$ x x x x] ⸢x x x-*šú*$^{?!}$⸣ ⸢DIRI⸣

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[8] Köcher, *Die babylonisch-assyrische Medizin* VI, ix note 10; M.J. Geller, "Augenkrankheiten," in *Texte aus der Umwelt des Alten Testaments, Neue Folge* 5: *Texte zur Heilkunde*, ed. B. Janowski et al. (Gütersloh: Gütersloher Verlagshaus, 2010), 61–62.

[9] IGI is the logogram (word sign) that represents the Akkadian word *īnu* ("eye").

[10] See A. Attia, "Traduction et commentaires des trois premières tablettes de la série IGI," *Le Journal des Médecines Cunéiformes* 25 (2015): 1–120. See also S. Panayotov, "Fragments of the Nineveh Medical Composition IGI join UGU," *Le Journal des Médecines Cunéiformes* 26 (2016): 59–67.

[11] J. Scurlock, *Sourcebook for Ancient Mesopotamian Medicine* (Atlanta, Georgia: SBL Press, 2014), 296–97.

[12] P. Attinger, "La médecine mésopotamienne," *Le Journal des Médecines Cunéiformes* 11–12 (2008): 26.

[13] Personal communication by Irving Finkel. The textual reconstruction of the Assur Medical Catalogue is prepared by the BabMed Team in Berlin, and it is forthcoming in *Assyrian and Babylonian Scholarly Text Catalogues: Medicine, Magic and Divination*, ed. U. Steinert, Die babylonisch-assyrische Medizin in Texten und Untersuchungen 9 (Berlin, de Gruyter). For the publication history of the medical catalogue, see the article by the present author, "Notes on the Assur Medical Catalogue with Comparison to the Nineveh Medical Encyclopaedia," in this forthcoming volume.

AMC 10 **NÍGIN 4 DUB.MEŠ DIŠ NA IGI^{II}-*šú* G[IG** EN (...) *šum*$_4$$^?$*-m*] *a*$^?$ ⌜IGI.SIG$_7$.SIG$_7$⌝ *u sin-*⌜*lu-ur-ma-a*⌝

AMC 8 "If a man's eyes are sick." (= name of chapter 1, mss. BAM VI, nos. 510, 513, 514):
["If a man's eyes] are full of [*murdin*]*nu* ('bramble')." (= name of chapter 2, ms. BAM VI, no. 515)

AMC 9 "If a man's eyes are constantly troubled." (= name of chapter 3, ms. BAM VI, no. 516).
["If a man] his (?) ... are full of [...]" (= name of chapter 4, unknown ms.)

AMC 10 Total of four chapters (i.e. tablets (of the treatise)) "If a man's eyes are si[ck." Including (prescriptions for the case,) i]f (man's eyes have) jaundice or night/day blindness.

The medical literature at Nineveh reflects exactly the information contained in the Assur catalogue. Whereas the total number of IGI tablets in the Assur catalogue is four, however, only the incipit (i.e., first line of each tablet) and the catch-line (i.e., first line of the next tablet) of three tablets are known at Nineveh. So far, scholars have assumed that there are only three tablets in the whole IGI treatise,[14] an assumption that AMC now seems to refute. In other words, we do not have a preserved copy, or we have not yet identified, the fourth tablet of the IGI treatise from the Nineveh Medical Encyclopaedia. To be sure, there is a cuneiform fragment from Nineveh (BAM VI, no. 520), which seems to be a good candidate for this lost fourth IGI tablet, since it shares thematic similarities with the third chapter of IGI. Furthermore, the fragment BAM VI, no. 520 apparently comes from a two-column portrait-orientated tablet, with two dividing rulings imprinted onto the clay by a thread (CDLI no. P398154). Since all serialized medical treatises from Nineveh (including all IGI tablets) are written only on two-column tablets, it is therefore highly suggestive that BAM VI, no. 520 also seems to be part of a tablet from a serialized treatise.

All together, there are at least 28 preserved and fragmentary incantations from the IGI treatise, where imagery on sick eyes is preserved. According to estimates, however, IGI material available to us so far constitutes only approximately half of the original length of text in the four IGI chapters, i.e., ca. 600 complete and fragmentary lines are preserved out of a total of ca. 1200. In addition, as we saw above, AMC line 10 mentions prescriptions for jaundice or night/day blindness collected at Nineveh, but not organized within the IGI treatise itself. We are indeed aware of additional fragments on eye prescriptions (also from Nineveh),[15] where further vestiges of eye incantations with figurative language may be expected.[16] After the political demise of Assyria at the end of the 7th century BCE, textual production yielded versions similar to the earlier IGI treatise, though incantations are generally not preserved in this later material (perhaps merely by chance). Examples of late texts concerned with eye therapy are known from the cuneiform centres of Babylon, Sippar and Uruk.[17]

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[14] J. C. Fincke, Augenleiden nach keilschriftlichen Quellen. Untersuchungen zur altorientalischen Medizin (Würzburg: Königshausen und Neumann, 2000), 6–7; Scurlock, Sourcebook for Ancient Mesopotamian Medicine, 297–98.

According to sequential procedures recorded in the IGI treatise, the full healing process consisted of therapeutic prescriptions, medical incantations and/or short rituals. These entities were the 'building blocks' of the IGI treatise. Some prescriptions, for instance, were explicitly linked to relevant incantations, which were recited at specific points during the performance of short rituals (see *Examples 4–6*).

3 What is a Medical Metaphor, Analogy or Simile?

Medical metaphors, analogies and similes are explanatory means for linking a malady or body part to an object, concept or social experience, which is specifically and culturally conditioned by society. Concepts of medical metaphors, based on 'bodily experience,'[18] are crucial for both Mesopotamian and modern cultures. Modern metaphors, for example, have themes based on agriculture, or allude to animals:[19]

> The stem cells we have are like tomato seeds, and think of the tomato fruit as the cells that circulate in the blood.

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[15] E.g., BAM VI, nos. 517, 518, 521, and 522.

[16] E.g., BAM VI, nos. 517 rev. 1′–4′; AMT 17/2: 6′–13′.

[17] Fincke, *Augenleiden*, 7–10; J. C. Fincke, "Cuneiform Tablets on Eye Diseases: Babylonian Sources in Relation to the Series DIŠ NA IGI$^{\text{II}}$-*šú* GIG," in *Advances in Mesopotamian Medicine from Hammurabi to Hippocrates*, ed. A. Attia and G. Buisson (Leiden: Brill, 2009), 82–84.

[18] Mainly coined by G. Lakoff and M. Johnson, *Metaphors We Live By* (Chicago: University of Chicago Press, 1980), 58, 247, 250; L. J. Kirmayer, "The Body's Insistence on Meaning: Metaphor as Presentation and Representation in Illness Experience," *Medical Anthropology Quarterly, New Series* 6 (1992): 337; G. W. van Rijn-van Tongeren, *Metaphors in Medical Texts* (Amsterdam: Rodopi, 1997), 119–21.

[19] Van Rijn-van Tongeren, *Metaphors in Medical Texts*, 76–77, 89–90.

> Your bone marrow is an elephant. It has a long memory. It remembers everything it has seen before.[20]

Agricultural and animal themes were also essential to Mesopotamian imagery (*Examples 2–3, 5, 8, and 20*). Each medical metaphor or metaphorical extension of a certain term has two main groundings: One is in physical experience, while the other is in social experience or observations of nature.[21] One topic (A) is explained through another topic (B).[22] For instance, the following statement occurs in an incantation (*Example 5*) that we will shortly encounter:

The eyes are suffused with blood	like	a slaughtered sheep.
Topic A	(represented by)	Topic B

The eyes are the bodily topic (A), while 'the slaughtered sheep' as topic (B) function as an explanatory vehicle that derives from common social experience in Mesopotamia. Through Topic (B), meaning is transferred, linking the state of the eyes with the slaughtering of sheep, which involves cutting and bleeding the animal. The word 'like' (Akkadian *kīma*, logogram GIN$_7$) defines the relationship between the topic (A) and the vehicle (B), in the same way modern medical figurative language elucidates the relationship of (A) and (B). Oncologists explain the consequence of chemotherapy through analogies such as:

The rash will look	just like	sunburn.
Topic A	(represented by)	Topic B

[Having a bone marrow biopsy] feels	like	you've been kicked by a horse.[23]
Topic A	(represented by)	Topic B

Are these examples to be understood as similes, or are they analogies or metaphors? Occasionally, it is difficult to make a clear distinction between these concepts.[24] For practical purposes in modern pathology, little attention has been paid to the difference between metaphor, analogy and simile.[25] Modern studies of medical figurative language tend to comprehend analogies as more "direct, whereas metaphors rely more on concepts and images,"[26] while both the simile and the metaphor operate by comparing a thing with something else in a figurative (versus literal) way. These fine categories differentiating metaphor, analogy and simile, however, seem to have been foreign to how ancient Mesopotamians thought about their language and, more specifically, about the use of such ideas in the imagery of incantations. For working purposes in my discussion below, I will continue to use the word "metaphor," but only in a generic way.

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[20] Casarett et al., "Can Metaphors and Analogies Improve Communication?" 258.

[21] Kirmayer, "The Body's Insistence on Meaning," 323–46; L. J. Kirmayer, "Healing and the Invention of Metaphor: the Effectiveness of Symbols Revisited," *Culture, Medicine, and Psychiatry* 17 (1993): 161–91.

[22] Casarett et al., "Can Metaphors and Analogies Improve Communication?" 256.

[23] *Ibid.*, 258.

4 Metaphors in Etiological Narratives (Historiola)

Let us first look at an image of creation as portrayed in the Babylonian Creation Myth *Enūma Eliš*. In Mesopotamia, the eye was fundamentally conceived as a water source, with its prototype extending as far back as the time of creation:

Example 1[27]
En. El. V 54 *naq-bu up-te-et-ta-a* ⸢*mû*⸣$^{\text{ú}}$ *it-téš-bi*
En. El. V 55 *ip-te-ma i-na īnī*$^{\text{II}}$*-šá pu-r*[*a-at-ta*] ⸢*i*⸣*-di-iq-lat*

He (*Marduk*) opened the abyss, and it was sated with water.
From her (*Tiāmat*'s) two eyes, he (*Marduk*) let the Euphrates and Tigris flow.

This is an etiological explanation for Mesopotamia's two major rivers: The Euphrates and the Tigris. The metaphor connects these rivers to streams of tears that flow from the eyes of the defeated goddess *Tiāmat*. The status of the "eye" (Akk. *īnu*) as a metaphoric extension of a "water source," however, was not limited to Mesopotamian contexts, as evident from how cognates of the term *ʾayn* in various Semitic languages could be used to designate both ideas.[28] As a matter of fact, the mythological setting that establishes the metaphor here resonates with ways in which narratives in medical incantations, as we will see, continued to situate their imagery in mythological time. As Wilfred Lambert observed, "the purpose of the myth (in incantations) is usually to explain the origin of a disease or pain-causing element."[29] This is certainly the case with an incantation from the Old Babylonian period (ca. 1st half of the 2nd millennium BCE) invoked against a "kernel" (Akk. *merḫu*), a tiny splintered fragment from a head of grain that was believed to enter the human eye and cause its suffering:

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[24] R. L. Gregory, ed. *The Oxford Companion to The Mind* (Oxford: Oxford University Press, 1987), 478–80.

[25] R. Kanthan and S. Mills, "Using Metaphors, Analogies and Similes as Aids in Teaching Pathology to Medical Students," *The Journal of the International Association of Medical Science Educators* 16 (2006): 19.

[26] Casarett et al., "Can Metaphors and Analogies Improve Communication?" 256.

[27] The following citation takes into account the edition by W. G. Lambert, *Babylonian Creation Myths* (Winona Lake, Indiana: Eisenbrauns, 2013), 100–01, lines 54–55.

Example 2[30]
obv. 1 *er-ṣé-tum-mi er-ṣé-tum*
obv. 2 *ú-li-id lu-ḫa-ma*
obv. 3 *lu-ḫa-mu-ú*
obv. 4 *ú-li-*⸢*id*⸣ *i-ši-na*
obv. 5 *i-ši-nu-um ú-*⸢*ili*⸣*-id*
obv. 6 *šu-bu-ul-tam* TUM$^{!?}$
obv. 7 *šu-bu-ul-tum*
obv. 8 *ú-li-id me-er-ḫa*
obv. 9 *i-na-mi* A.ŠÀ $^{\text{d}+}$*En-líl*
obv. 10 *mi-it-ḫa-ri-im*
obv. 11 7 BUR[31] A.ŠÀ
obv. 12 $^{\text{d}+}$EN.ZU *i-ṣí-di*
rev. 1 $^{\ulcorner\text{d!}\urcorner}$UTU *ú-ša-ap-ḫa-ar*
rev. 2 *a-na-mi* IGI GURUŠ
rev. 3 *i-te-ru-ub*

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[28] Compare E. von Weiher, *Spätbabylonische Texte aus Uruk.* Teil II (Berlin: Gebr. Mann Verlag, 1983), 21, Z. 7.

[29] Lambert, *Babylonian Creation Myths*, 399.

[30] Adapted from B. Landsberger and T. Jacobsen, "An Old Babylonian Charm against Merḫu," *Journal of Near Eastern Studies* 14 (1955): 15. The following citation takes into account translations by T. J. Collins, "Natural Illness in Babylonian Medical Incantations" (Ph.D. Diss. University of Chicago, 1999), 227–28; Lambert, *Babylonian Creation Myths*, 399. For additional literature and commentary see the edition in SEAL nr. 5.1.21.1.

[31] Gratitude is due to the anonymous reviewer, who points out that 70 *ikû* in the edition of Collins and SEAL (mentioned in the previous footnote) is misleading. In the Old Babylonian system, one has to read 7 BUR (with the original edition in JNES 14, 15), which will result in 7×18=126 *ikû*.

> The earth—it is being said[32]—the earth gave birth to the mud, the mud gave birth to the stalk, the stalk gave birth to the head of grain, the head of grain gave birth to the *merḫu*-kernel. In the square field of the god Enlil, 7 bur-measures (in area), (while) the Moon-god was reaping, (and) the Sun-god was harvesting, into—it is being said—the eye of the lad the *merḫu*-kernel entered.

The same tableau of images can be unmistakably identified in chapter one of the IGI treatise, along with additional features that show how the imagery developed during the period of ca. 1000 years between the Old Babylonian incantation of *Example 2* and the Nineveh Treatise of *Example 3*.

Example 3[33]

BAM 510 iv 41	ÉN *ina šur-ri-i la-*⸢*am*⸣ *ba-ša-mu a-la-lu ur-da ana ma-t*[*i*]
BAM 514 iv 46′	[...................... *ba-ša-m*]*u* [*a-l*]*a-l*[*u*] ⸢*ur-da*⸣ *ana ma-t*[*i*]
BAM 510 iv 42	*it-tu-ú še-*⸢*er*⸣*-a* Ù.TU *še-er-ḫu ḫab-bur-r*[*a*]
BAM 514 iv 47′	[............] ⸢Ù.TU *še*⸣*-er-ḫu* [..........]
BAM 510 iv 43	*ḫab-bur-ra ka-an-na* ⸢*ka*⸣*-an-nu ki-iṣ-ra ki-iṣ-ru šu-bu-ul-ta šu-bul-*[*tu*]
BAM 514 iv 48′	[.................... *ka-an*]-⸢*nu ki-iṣ-ra ki*⸣*-iṣ-ru šu-bu-*[*ul-ta* ....]
BAM 510 iv 44	*mé-er-a* ^{d}UTU *e-ṣi-*⸢*id*⸣ ^{d}30 *ú-pa-ḫar* ^{d}UTU *ina e-ṣe-di-šú* ^{d}30 *ina pu-ḫu-*[*ri-šú*]
BAM 514 iv 49′	[........................... *ú-pa-ḫa*]*r* ^{d}UTU *ina e-*⸢*ṣe-di*⸣-[*šú* ....]

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32 The phrase 'it is being said' attempts to translate the Akkadian particle of direct speech *-mi* (obv. 1, rev. 2).

33 BAM VI, no. 510, lines iv 41–46, BAM VI, no. 514, lines iv 46′–51′ [= ZA 74, 296]. The cuneiform edition here is based on work by Geller and Panayotov, but also takes into account translations in Collins, "Natural Illness in Babylonian Medical Incantations," 225–26; B. R. Foster, *Before the Muses: An Anthology of Akkadian Literature* (Bethesda, Maryland: CDL Press, 2005), 969; Geller, *Ancient Babylonian Medicine*, 94–95; Lambert, *Babylonian Creation Myths*, 399–400; Attia, "Traduction et commentaires des trois premières tablettes de la série IGI," 22 §95.

BAM 510 iv 45	*ana* IGI GURUŠ *me-er-ḫu* KU$_4$-⸢*ub*⸣ ^{d}UTU *u* ^{d}30 *i-ši-za-nim-ma me-er-ḫu li-la-*⸢*a*⸣ [TU$_6$.ÉN]
BAM 514 iv 50′	[*ana* IGI GURUŠ *me-er-ḫu* KU$_4$-⸢*ub*⸣ ^{d}UTU *u* ^{d}30] ⸢*i-ši*⸣-[*za-ni*]*m-*⸢*ma*⸣ *mé-e*[*r-ḫu li-la-a* TU$_6$.ÉN]
BAM 510 iv 46	KA.INIM.MA *me-er-ḫu* ⸢*ša*⸣ ŠÀ IGI.MIN *š*[*u-li-i*]
BAM 514 iv 51′	[KA.INIM.MA *me-er-ḫu ša*] ⸢ŠÀ IGI.MIN *šu*⸣-[*li-i*]

> Incantation. In the beginning before creation, the shaduf (lit. a water pipe) descended (from heaven) to earth, the seeder-plough gave birth to the furrow, the furrow to the sprout, the sprout to the root-stock, the root-stock to the bud, the bud to the head of grain, (and) the head of grain to the *merḫu*-kernel.[34] The Sun-god was harvesting (and) the Moon-god was reaping. While the Sun-god was harvesting (and) the Moon-god was reaping, the *merḫu*-kernel entered the eye of the lad. O Sun-god and Moon-god, stand by me! And let the *merḫu*-kernel take off! [Incantation spell.] Invocation for removing the *merḫu*-kernel from within the eyes.

In both Old Babylonian (*Example 2*) and Neo Assyrian (*Example 3*) narratives, the *merḫu* grows as part of a plant, before finally being birthed by the “head of grain” (*šubultu*). *Merḫu* is therefore a divine creation, in that it is cultivated by the agricultural activities of Sun and Moon gods. These deities are accordingly beseeched to take responsibility for their creation, and to remove the foreign object from the eye of the “lad,” an archetypal folk character who represented the patient. Needless to say, the social experience of harvesting is crucial for understanding the *merḫu* metaphor. When the crop is handled roughly as part of harvesting, light particles of dry vegetable matter are often shaken off into the air and easily enter the human eye, causing irritation, injury, or an allergic reaction. This etiology, based on largely universal agricultural practices, was and still remains easily relatable.

What precisely was the *merḫu*? The scholars who first published the Old Babylonian incantation, Benno Landsberger and Thorkild Jacobsen, suggested that *merḫu* referred to a “sty,” presumably influenced in their interpretation by the German term “*Gerstenkorn*,” though they also allowed for the translation "ergot."[35] Others, following after, generally accepted this identification of a "sty."[36] Marten Stol rejected the translation "ergot," and suggested that *merḫu* represented the disease "trachoma," on the grounds that the Greek term *krithè* ("barley grain") was also used as a metaphor for this eye disease.[37] Timothy Collins, moreover, kept to the interpretation of *merḫu* as "sty," but translated *merḫu* as "kernel," which I have followed here.[38] Benjamin Foster translated *merḫu* as "mote,"[39] though this translation downplays the object's agricultural roots that figure so prominently in the incantations above. The Parisian ophthalmologist Annie Attia thought that *merḫu* corresponds to "à l'orgelet ou à une granulation conjonctivale,"[40] allowing for more than one possible identification.

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[34] In the Late Assyrian incantation, the *mer’u* is a variant for *merḫu*. See Lambert, *Babylonian Creation Myths*, 399.

It is fascinating to note that different languages often employ words for "barley," "corn," "bead," or "kernel," as imagery for eye disease. In contemporary ancient Egypt, *pds.t* "small ball" refers to a malady of the eye, which Egyptologists have also understood to mean a "sty."[41] In modern languages, such as German (*das Gerstenkorn*), French (*orgelet*), or Bulgarian (*ечемик*), the "barley grain" is routinely used to refer, similarly, to a sty in the human eye. In all these different languages, imagery focuses on the shape of the object that afflicts the human eye, but we must be aware that identifying *merḫu* exclusively with any of these words runs the risk of imposing anachronistic notions onto ancient conceptions of the term. Finally, it is important to remember that the usual Akkadian word for "grain/corn" is, in fact, not *merḫu* but *še'u*

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[35] Landsberger and Jacobsen, "An Old Babylonian Charm against Merḫu," 16, 19; B. Landsberger, "Corrections to the Article, 'An Old Babylonian Charm against Merḫu,'" *Journal of Near Eastern Studies* 17 (1958): 56–58.

[36] Fincke, Augenleiden, 199–200; J. Scurlock and B. R. Andersen, Diagnoses in Assyrian and Babylonian Medicine: Ancient Sources, Translations, and Modern Medical Analyses (Urbana/Chicago: University of Illinois Press, 2005), 194.

[37] M. Stol, "Old Babylonian Ophthalmology," in *Reflets des deux fleuves. Volume de Mélanges offerts à André Finet*, ed. M. Lebeau et al. (Leuven: Peeters, 1989), 165; J. Kinnier Wilson, "On the Cryptogams in the Lexical and Related Texts," *Le Journal des Médecines Cunéiformes* 6 (2005): 10.

[38] Collins, "Natural Illness in Babylonian Medical Incantations," 65, 95.

[39] Foster, *Before the Muses*, 969.

[40] Attia, "Traduction et commentaires des trois premières tablettes de la série IGI," 22 §95; 56.

[41] W. Westendorf, *Handbuch der altägyptischen Medizin* (Leiden: Brill, 1999), 149; S. R. Andersen, "The Eye and its Diseases in Ancient Egypt," *Acta Ophthalmologica Scandinavica* 75 (1997): 340.

(or *û*). That being said, *merḫu* undoubtedly functions as a metaphor, describing a grain-like entity or "granule" in the eye that can be the result of a sty, trachoma or allergy. A precise identification with modern disease is hardly possible, however, since ancient and modern taxonomies for diseases differ, even if the concepts behind them are unmistakably similar.

5 Imagery of Blood, Shadow, Clouds, Foreign Objects, Sisters and Winds

Metaphors in medical incantations frame an illness with its symptoms in particular ways,[42] providing conceptual models that suggest how healers and patients ought to understand it and respond to it. The passage below from chapter one of the IGI treatise illustrates the shared aims of material and verbal aspects of therapy, since the malady that the prescribed recipe in *Example 4* attempts to cure is precisely what appears as the topic in the IGI incantation of *Example 5*. As shown below also, therapeutic prescriptions were usually introduced by short accounts of bodily symptoms manifest due to the disease.

Example 4[43]

BAM 510 ii 16′	DIŠ NA IGI.MIN-*š*[*ú* .... *ul-ta-t*]*a-ni-ʾa* MÚD ÉR *ina* ŠÀ IGI.MIN-*šú* ⸢È⸣-[*a*]
BAM 513 ii 31′	[.. .... Š]À IGI.MIN-*šú* ⸢È-*a*⸣
BAM 514 ii 27′	[DIŠ N]A IGI.MIN-*šú* GIG-*ma* MÚD DIRI $^{\check{s}im}$BULUḪ.ḪI.A MÚD *ul-ta-ta-ni-ʾa* MÚD ÉR *ina* ŠÀ IGI.MIN-*šú* ⸢È⸣-[*a*]
BAM 510 ii 17′	GISSU ^{d}LAMA IG[I.MIN-*šú* .... GISSU GU]R *di-gal*$_{9}$ DUGUD-*šú* $^{gi\check{s}}$ŠINIG SIG$_{7}$-*su tu-*[*ḫa-sa*]

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42 Collins, "Natural Illness in Babylonian Medical Incantations," 1.

43 BAM VI, no. 510, lines ii 16′–22′; no. 513, lines ii 31′–37′; no. 514, lines ii 27′–33′. The cuneiform edition here is based on work by Geller and Panayotov, but also takes into account the translation and discussion by Attia, "Traduction et commentaires des trois premières tablettes de la série IGI," 14, 33–35, 88.

BAM 513 ii 32′ [.. $^{\text{giš}}$ŠI]NIG SIG$_7$-*su tu-ḫa-sa*
BAM 514 ii 28′ [GIS]SU $^{\text{d}}$LAMA IGI.MIN-*šú ú-na-kap a-ši-tu* ⸢*ana*⸣ GISSU GUR *di-gal*$_9$ ⸢DUGUD⸣-*šú* $^{\text{giš}}$ŠINIG SIG$_7$-*su tu-ḫa-s*[*a*]

BAM 510 ii 18′ *ina* A.GEŠTIN.NA KALA.GA *tar*[*a-muk*.................... Á.G]Ú.ZI.GA *ana* ŠÀ *ḫu-li-ia-am* SUR-[*at*]
BAM 513 ii 33′ [.. Á.GÚ.ZI.G]A *ana* ŠÀ *ḫu-li-ia-am* SUR-*at*
BAM 514 ii 29′ [*ina* A.GE]ŠTIN.NA KALA.GA *tara-muk ina* UL *tuš-bat ina* Á.GÚ.ZI.GA *ana* ŠÀ *ḫu-li-ia-am* SUR-*at*

BAM 510 ii 19′ IM.SAḪAR.BABBAR.KUR.RA Ú.BABBAR MU[N.................] *tuš-ka-a* $^{\text{ú}}$*zi-ba-a* ILLU URUDU *a-ḫe-*[*nu-ú*...]
BAM 513 ii 34′ .... $^{\text{ú}}$*z*]*i-ba-a* ILLU URUDU *a-ḫe-nu-ú* SÚD
BAM 514 ii 30′ [IM.SAḪAR].BABBAR.KUR.RA Ú.BABBAR MUN *eme-sal-lì* Ì.UDU *tuš-ka-a* $^{\text{ú}}$*zi-ba-a* ILLU URUDU *a-ḫe-nu-u* SÚD

BAM 510 ii 20′ *mál-ma-liš* TI-*qé* 1-*niš tuš-te-mid an*[*a* ŠÀ *ḫu-li-ia-a*]*m ša ta-áš-ḫu-tu* DUB-[*ak*]
BAM 513 ii 35′ [.. *ḫu-l*]*i-*⸢*ia*⸣*-am ša ta-áš-ḫu-tu* DUB-*ak*
BAM 514 ii 31′ [..........] TI-*qé* 1-*niš tuš-te-mid ana* ŠÀ *ḫu-li-ia-am* ⸢*ša*⸣ *ta-áš-ḫu-tu* DUB-*ak*

BAM 510 ii 21′ *ina* Ì.NUN *u* $^{\text{na4}}$ŠU.MÌN ⸢SILA$_{11}$-*aš*$^{!}$-*ma* SAG⸣ I[GI.MIN-*šú*] *ina* ŠU.SI BAD-*te ana* ŠÀ IGI.MIN-*šú* GAR-[*an*]
BAM 513 ii 36′ [.. IGI.MIN-*š*]*ú ina* ŠU.SI BAD-*te ana* ŠÀ IGI.MIN-*šú* GAR-*an*
BAM 514 ii 32′ [*ina* Ì.NU]N *u* $^{\text{na4}}$ŠU.MÌN SILA$_{11}$-*aš*$^{\text{!(erasure over nu)}}$-*ma* SAG IGI.MIN-*šú ina* ŠU.SI ⸢BAD-*te*⸣ *ana* ŠÀ IGI.MIN-*šú* GAR-*an*

BAM 510 ii 22′	IGI.MIN-*šú* DUL-*ma ú-kal* IGI.MIN-*šú ta-kar-ma* ⸢UD⸣.9.KÁM *an-na-a* DÙ.[MEŠ]
BAM 513 ii 37′	[.............................. IGI.MI]N-*šú ta-kar-ma* UD.9.KÁM *an-na-a* DÙ.MEŠ
BAM 514 ii 33′	[................ D]UL-*ma ú-kal* IGI.MIN-*šú* ⸢*ta*⸣-*kar-ma* ⸢UD⸣.9.KÁM *an-na-a* DÙ.MEŠ

> If a man's eyes are sick and full of blood. They (= the eyes) are suffused with *baluḫḫu*-granules and blood, blood (and) tears come out from his eyes. A film/shadow (GISSU) pushes away the pupil of his eyes (^{d}LAMA IGI.MIN-*šú*). The blurred vision has turned into a film/shadow (GISSU), with seeing being burdensome to him. (In order to cure this condition:) you squeeze *bīnu*-tamarisk while still fresh, soak (it) in strong vinegar, let it stay under a star (= stay overnight).[44] In the morning, you press it out into a *ḫuliam*-vessel. You pound separately *alluḫaru*-white mineral, white plant, *emesallu*-saline solution, fat, *tuškû*-mineral, black cumin (and) exudation of copper. You take in equal amounts (and) stir (them) together. You pour (them) into the *ḫuliam*-vessel, which you have (earlier) filled. You knead (this mixture) in ghee and *šumēnu*-mineral, then you open the upper part of his eyes with a finger (and) put (the medication) into his eyes. He holds his eyes closed (while) you rub his eyes (i.e. presumably the eyelids) and continuously do this for nine days.

Several details above are worthy of note. First, it is significant that copper is also used as an ingredient in modern ophthalmology, and functions as a good antiseptic for the eyelids.[45] The Akkadian term *ṣillu* (logogram GISSU), which is translated here as "shadow/film," is actually attested as a symptom for eye disease in texts from the city Ur as early as Old Babylonian times,[46] and represents a metaphor for one of the major eye complaints (see discussion under

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[44] For views that this idiom expresses the astral irradiation of medicaments, see J. Z. Wee, "Lugalbanda Under the Night Sky: Scenes of Celestial Healing in Ancient Mesopotamia," *Journal of Near Eastern Studies* 73/1 (2014): 23–42.

[45] Remark is courtesy of Annie Attia.

[46] Old Babylonian medical texts from Ur are being edited by Finkel, see already I. Finkel, "Old Babylonian medicine at Ur: letter aux éditeurs," *Le Journal des Médecines Cunéiformes* 4 (2004): 26.

Example 5). The expression *lamassi/lamassat īnīšu* (^{d}LAMA IGI.MIN-*šú*) literally means "the tutelary goddess-(image) of both his eyes," and is routinely used as a metaphor for the pupil of the eye. Such imagery likely derived from the fact that, when one looks closely into another person's eyes, one can see one's own image reflected in the pupils. This miniature figure reflected in the eyes was interpreted as a kind of "tuteltary or protective deity" (^{d}LAMA) who also appears elsewhere in anthropomorphic form. The situation here is reminiscent of how, even today, various languages allude to to human-like creature in the eye, such as, for instance, the Quechua-Spanish expression "ángel del ojo" for the pupil.[47]

The figurative language of magic in the following incantation (*Example 5*) conceptualizes diseases with bloodshot eyes and a 'shadow,' which was exactly one of the important topics of the preceding therapeutic prescription (*Example 4*). This shows again that the topic of the incantation was intentionally connected to the topic of the preceding therapeutic prescription. This was certainly due to the editorial scribal redactions in the Royal library of Nineveh.

Example 5[48]

BAM 510 ii 26′	ÉN igi bar igi bar-bar igi bar-ra bar-bar ⸢igi ḫuš⸣ igi ḫuš-ḫuš igi bar-ra ḫ[uš-ḫuš]
BAM 513 ii 41′	[…………………… b]ar-ra bar-bar igi ḫuš igi ḫuš-ḫuš igi bar-ra ḫ[uš-ḫuš]
BAM 514 ii 37′	[…………………… bar-r]a bar-bar igi ḫuš igi ḫuš-ḫuš igi bar-ra ḫuš-⸢ḫuš⸣

BAM 510 ii 27′	[igi b]ar ⸢ná-a igi bar da-a igi bar ḫul⸣-a IGI.MIN *a-ba-tu* IGI.MIN *a-*[*ša-tu*]
BAM 513 ii 42′	[………………… d]a-a igi bar ḫul-a IGI.MIN *a-ba-tu* IGI.MIN *a-ša-*[*tu*]

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[47] Examples and discussions in Couto-Ferreira, "Etnoanatomía y partonomía del cuerpo humano," 137.

[48] BAM VI, no. 510, lines ii 26′–33′; no. 513, lines ii 41′–48′ [= CM 10, 65–68, 68]; no. 514, lines ii 37′–44′. The cuneiform edition here is based on work by Geller and Panayotov, but also takes into account works by W. Farber, "*Māra/āt Anim* oder: Des Anu Töchterlein (In Singular und Plural, Text und Bild)," in *Festschrift für Rykle Borger zu seinem 65. Geburtstag am 24. Mai 1994: tikip santakki mala bašmu*, ed. S. M. Maul (Groningen: Styx, 1998), 65; Collins, "Natural Illness in Babylonian Medical Incantations," 203–05; Geller, *Ancient Babylonian Medicine*, 92–93.

BAM 514 ii 38′	[.................... da]-⸢a⸣ igi bar ḫul-a IGI.MIN *a-ba-tu* IGI.MIN *a-ša-*[*tu*]

BAM 510 ii 28′	[.............. *šu-ḫ*]*ar-ra-tú* IGI.MIN $^{\text{erasure}}$ GIN$_7$ *nik-si* UDU.NÍTA MÚD [......]
BAM 513 ii 43′	[..............*šu-ḫ*]*ar-ra-te* IGI.MIN GIN$_7$ *nik-si* UDU.NÍTA [MÚ]D *še-en-*⸢*a*⸣
BAM 514 ii 39′	[.....] ⸢MÚD$^{?}$ *šu*$^{?}$*-ḫar*$^{?}$⸣-[*ra-te*] IGI.MIN GIN$_7$ *nik-si* UDU.NÍTA ⸢MÚD⸣ *š*[*e-en-a*]

BAM 510 ii 29′	[..........................] ⸢*a*⸣*-la-pa-a* ŠUB-*a ki-ma* DUG A.GEŠTIN.NA ŠUB-*a* [.........]
BAM 513 ii 44′	[............................... *a-la-p*]*a-a* ŠUB-*a ki-ma* DUG A.GEŠTIN.NA ⸢ŠUB-*a*⸣ *ṣil-la*
BAM 514 ii 40′	GIN$_7$ A.MEŠ *ša a-gala-pe-e a-l*[*a-pa-a* .... D]UG ⸢A.GEŠTIN.NA [..........]

BAM 510 ii 30′	[.................................... K]U$_4$-*ub* ^{d}GÌR *ina be-ru-ši-na it-ta-*[*di* ....]
BAM 513 ii 45′	[................ *pi-ti-i*]*q-tu*$_4$ *pat-qat* KU$_4$-*ub* ^{d}GÌR *ina be-ru-ši-na it-ta-di* ^{giš}GU.ZA-*šú*
BAM 514 ii 41′	*ina be-ri-ši-na pi-ti-iq-tu*$_4$ *pat-q*[*at* .... *be-ru-š*]*i-n*[*a* ....]

BAM 510 ii 31′	[.. É]N *ul ia-at-tú-un* ÉN ^{d}*e-a u* [......................]
BAM 513 ii 46′	[.....................................] *la na-pa-še* ÉN *ul* ⸢*ia-at-tu*⸣*-un* ÉN ^{d}*e-a u* ^{d}*asal-lú-ḫi*
BAM 514 ii 42′	⸢*áš-šúm*⸣ *an-ni-tu ina* ŠÀ *an-ni-te* ⸢*la*[49] *na-pa-še*⸣ É[N$^{!}$ *ul* ⸢*ia-at-tu*⸣*-un* ÉN ^{d}*e-a u* ^{d}*asal-lú-ḫi*

BAM 510 ii 32′	[...................................] ⸢*be-let*⸣ ÉN ^{d}*gu-la* TI.LA-*ma* NÍG.BA-*k*[*i* ....]
BAM 513 ii 47′	[............. ^{d}*gu-l*]*a* ÉN ^{d}*nin-gìrima be-let šip-te* ^{d}*gu-la* TI-*ma* NÍG.BA-*ki* TI TU$_6$.ÉN
BAM 514 ii 43′	ÉN ^{d}*da-mu u* ^{d}*gu-la* ⸢ÉN ^{d}*nin-gìrima*⸣ [................]

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[49] Not TU as on Köchers' copy!

BAM 510 ii 33′	[............] IGI GIG.GA.[......]
BAM 513 ii 48′	[............] IGI GIG.GA.A.KÁM
BAM 514 ii 44′	KA.INIM.MA [....................]

> Incantation: the open eye is a staring eye, the opened eye stares, the reddish eye is a crimson eye, the opened eye is crimson. The open eye is drowsy, the open eye is *weak*, the open eye is harmed. O cloudy eyes (IGI.MIN *a-ba-tu*), blurred eyes (vision). [The (eye) blood vessel] is porous. The eyes are suffused with blood like a slaughtered sheep, they (= the eyes) are spotted like the (muddy) water of a lagoon with *alapû*-algae, they (= the eyes) are spotted like a vinegar-jar (DUG A.GEŠTIN.NA) with a film/shadow (*ṣillu*). In between them (= the eyes) a mud-brick wall is constructed (= possibly the nose). Šakkan (the animal god) entered between them (= the eyes) and install his seat (possibly on the mud-brick wall, i.e. on the nose). Therefore, one cannot breathe in the middle of it (= the nose). The incantation is not mine; it is the incantation of Ea and Asalluhi, the incantation of Dāmu and Gula, the incantation of Ningirimma, mistress of incantations. O Gula keep (me) healthy and accept your fee. Incantation spell. It is an invocation for a sick eye.

A monotone introduction to the incantation reads like a folk magic rather than an elaborate incantation. Also, other Late Assyrian incantations from chapter one of the IGI treatise start with the same mantra spell (as *Example 8* below). The Sumerian here is typically described as mumbo jumbo,[50] and scholars consider it best to leave such obscure expressions untranslated.[51] But, this 7th century BCE folk magic is not only artificial, it is also a witness to a long magico-medical tradition, since variants of this spell are known from the second millennium BCE.[52] According to Irving Finkel, such spells ‘were particularly valued' in the Mesopotamian magic of first millennium BCE.[53] The opening spell of *Example 5* is clearly connected to the medical condition from the preceding prescription (*Example 4*), illustrating the blood-reddened eyes. The adjective ḫuš is normally interpreted as 'angry, fierce,'[54] but the other meaning of ḫuš 'reddish and sore'[55] fits the medical context of eye disease better.[56] Accordingly, igi ḫuš-ḫuš could be a superlative meaning 'very reddish, crimson eye,' suggesting that the eye colour is intensely red.[57] This is due to excessive blood in the eyes as described in the first lines of the preceding prescription (*Example 4*). This shows unmistakably that the opening lines of the incantation (*Example 5*) convey important meaning, introduce the topic of the incantation, but also refer to the preceding therapeutic prescription (*Example 4*). The words are simple, and possibly many healers and patients could immediately comprehend what is the condition of the sick eye when it is 'very red, crimson' (igi huš-huš).

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[50] N. Veldhuis, “The Poetry of Magic,” in *Mesopotamian Magic: Textual, Historical, and Interpretative Perspectives*, ed. T. Abusch and K. van der Toorn (Groningen: Styx, 1999), 46–48.

[51] B. Böck, *The Healing Goddess Gula: Towards an Understanding of Ancient Babylonian Medicine* (Leiden: Brill, 2014), 189–90; Collins, “Natural Illness in Babylonian Medical Incantations,” 205.

[52] D. Arnaud, Corpus des textes de bibliothéque de Ras Shamra-Ougarit (1936–2000) (Sabadell-Barcelona: Editorial Ausa, 2007), 98.

The eyes are metaphorically referred to as 'cloudy.' Intriguingly enough, the 'cloudy eyes' is both a metaphor in Akkadian and in English. In Akkadian *upû* means 'cloud,' and the same root *apû* is used as a qualification of the eye symptom.[58] The next metaphor associates the eyes with the image of the slaughtered sheep accompanied by a strong blood flow. This picture stems from a common social experience of slaughtering sheep and it colourfully pictures the injury of the eyes and the blood, alluding to the appearance of the blood shed during the slaughter (see also paragraph 3).

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[53] I. L. Finkel, *The Ark Before Noah: Decoding the Story of the Flood* (London: Hodder & Stoughton, 2014), 62.

[54] J. Black, "Some Sumerian Adjectives," *Acta Sumerologica* 22 (2005): 13, 15; Böck, *The Healing Goddess Gula*, 190.

[55] Sumerische Glossare und Indizes (SGI), Belegsammlung, Version 1.1 15. Juli 2014, p. 1777–78 http://dnms.org/apps/sgi; Fincke, *Augenleiden*, 302.

[56] Of course, huš means in many cases 'angry/fierce' possibly because phenomena as reddish eye, face or skin may also suggest a fierce attitude, as in expressions igi(eye/face)-huš or muš-huš 'fierce snake,' but huš as reddish and thus sore in medical context makes better sense. See also J. Bauer, "Review of J. J. A. van Dijk and M. J. Geller, Ur III Incantations from the Frau Professor Hilprecht-Collection, Jena," *Bibliotheca Orientalis* 64 (2007): 179; where huš in the medical context of eye disease is described as follows: "Es könnte sich um etwas Entzündetes (huš "rot") handeln."

[57] M.-L. Thomsen, The Sumerian Language: an introduction to its history and grammatical structure (Copenhagen: Akademisk Forlag, 1984), 65.

[58] CAD U/W, 191–92. See also the example in Fincke, *Augenleiden*, 81 fn. 621.

The next metaphor adds an allusion to the appearance of water covered with *alapû*-alga,[59] metaphorically representing the sick appearance of the eyes and the 'shadow, film' (*ṣillu*), which covers the eyes.[60] This could be easily imagined in the Marshes of south Iraq. The metaphor, "they (= the eyes) are spotted like a vinegar-jar (DUG A.GEŠTIN.NA) with a film/shadow (*ṣillu*)" connotes a 'shadow, film' (*ṣillu*) on the surface of the vinegar. Thus, the vessel will be the eye opening and the liquid within corresponds to the watery substance of the eyes (compare also to *Example 1*). The notion of a vessel is a clear metaphor for an eye or an eye part, as we will see in paragraph 6 below. The word *ṣillu* 'shadow' or 'film' is a metaphorical extension for eye suffering, which is another difficult term to define, as the *merḫu* case discussed after *Example 3* above. For different scholars, *ṣillu*(GISSU) seems to refer to 'corneal opacities' or 'pterygium.'[61] The important question, however, is who sees the 'shadow' or 'film' in the eye: is it the patient, the healer or both? Assuming that the description *ṣillu* derived from the patient whose vision was impaired, for which he then sought help. Subsequently, the *ṣillu* could be seen by the healer. In this case, the term 'cataract' could be also suggested as another way to understand *ṣillu*. But as with the term *merḫu* (*Examples 2 and 3* above), the suffering *ṣillu* seems to correspond to multiple diseases in modern medical parlance.

The last lines of the incantation (*Example 5*) are a typical means for requesting divine help, implying that the incantation uttered by the healer is so powerful because it is the incantation of the healing gods and not just of the healer. In this way, the effectiveness of the incantation is insured through a fee, securing the assistance of the responsible divinity, suggesting also that the medical treatment was not free.[62]

The rubric at the end of *Example 5* states: 'it is an invocation for a sick eye,' which does not specify a certain illness or symptom but is a general description of eye suffering, suggesting that such incantations might have been used for multiple medical complaints. The next short ritual follows the preceding incantation (*Example 5*):

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[59] Kinnier Wilson, "On the Cryptogams," 7–8.

[60] Cf. N. Veldhuis, "The Reading of GISSU in Ophthalmological Context," *Nouvelles Assyriologiques Brèves et Utilitaires* (1991): no. 106; N. Veldhuis, "Corrections to 'The Reading of GISSU in Ophthalmological Context,'" *Nouvelles Assyriologiques Brèves et Utilitaires* (1992): no. 32.

[61] R. L. Miller, "Eye Surgery and *ṣillu*, 'Pterygium, Conjunctival Degeneration,'" *Nouvelles Assyriologiques Brèves et Utilitaires* (1989): no. 10; Fincke, *Augenleiden*, 208; Scurlock and Andersen, *Diagnoses in Assyrian and Babylonian Medicine*, 196. The term is fully discussed by Attia, "Traduction et commentaires des trois premières tablettes de la série IGI," 87–89.

[62] Geller, Ancient Babylonian Medicine, 93–94.

Example 6[63]

BAM 510 ii 34′	[.. KE]ŠDA *e-ma* KEŠDA ÉN ŠID-*nu ina* IGI-*šú* T[I ....]
BAM 513 iii 1	.... *an-nu*]-⸢*ú*⸣ *š*[*a* S]ÍG ⸢BABBAR DUR NU.NU 7 KA.KEŠDA KEŠDA⸣ *e-ma* KEŠDA ÉN ŠID-*nu ina* IGI-*šú* ⸢TI.LA-*ti* KEŠDA-*su*⸣
BAM 514 ii 45f.′	DÙ.DÙ.BI *an-nu-u ša* SÍG BABBAR DUR NU.NU ⸢7⸣ [...] *ina* IGI-*š*[*ú* ....]

Its ritual: you spin this, which is a cord of white wool. You shall tie (on) seven knots. Whenever you make a knot, you shall recite the incantation (*Example 5*), and bind it on his healthy eye!

In this way, the incantation (*Example 5*) was magically transferred into a material that was bound onto the eye. Let us turn our attention to another incantation from the same Nineveh treatise IGI chapter one:

Example 7[64]

BAM 510 iv 34	ÉN *a*[*t-ti-na i-na pu*]*r*-⸢*si-mi-it*⸣ MÚD *šu-ḫar-ra-tú am-mi-ni ta-aš-ša-ni ḫa*-⸢*ma*⸣
BAM 514 iv 39′	[........] ⸢*i*⸣-*n*[*a*$^{!?}$] ⸢*pur-si-mi-it* MÚD *šu*-⸢*ḫar-ra-tú am-mi-ni* ⸢*ta-aš-šá-ni ḫa-ma*⸣

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[63] BAM VI, no. 510, line ii 34′; no. 513, line iii 1′ [= CM 10, 66, 68]; no. 514, lines ii 45′–46′. The cuneiform edition here is based on work by Geller and Panayotov, but also takes into account works by W. Farber, "*Māra/āt Anim* oder: Des Anu Töchterlein (In Singular und Plural, Text und Bild), 65; Collins, "Natural Illness in Babylonian Medical Incantations," 203–05; Geller, *Ancient Babylonian Medicine*, 92–93.

[64] BAM VI, no. 510, lines iv 34–40, BAM VI, no. 514, lines iv 39′–45′ [= ZA 74, 296]. The cuneiform edition here is based on work by Geller and Panayotov, but also takes into account works by Collins, "Natural Illness in Babylonian Medical Incantations," 216–18; Foster, *Before the Muses*, 970; Geller, *Ancient Babylonian Medicine*, 93–94.

BAM 510 iv 35	*ḫa-an-d*[*a-bi-l*]*u*$^{?}$[65] *šu-ur-šu-ra e-lap*$^{!}$*-pa-a ša* ÍD *ina* SILA.MEŠ *kir-ba-ni*
BAM 514 iv 40′	[................] ⸢*šu-úr-šu-ri-im a-lap-pa-na*$^{?}$ *ša* ÍD *ina* SILA.MEŠ *kir-ba-ni*⸣
BAM 510 iv 36	*ina tub-qí*[*n-na*]-⸢*a*⸣*-te ḫu-ṣa-a-ba am-mi-ni taš-ša-ni zu-un-na-ni* GIN$_7$ MUL
BAM 514 iv 41′	[................. *-t*]*e* ⸢*ḫu-ṣa-a-ba*⸣ *am-mi-ni* ⸢*taš-ša-ni zu-un-na-ni* GIN$_7$⸣ MUL
BAM 510 iv 37	*mi-ta-q*[*u-ta*]*-ni* GIN$_7$ *nab-li la-am ik-šu-du-ki-na-ši ṣur-ru nag-la-bu*
BAM 514 iv 42′	[*mi-ta-q*]*u-*⸢*ta-ni* GIN$_7$ *nab-li la-am ik*⸣*-šu-*⸢*du-ki-na*⸣*-ši ṣur-*⸢*ru u nag-la-bu*
BAM 510 iv 38	*šá* ^{d}*gu-la* É[N N]U DU$_8$ ÉN ^{d}*asal-lú-ḫi* ^{d}AMAR.UTU ÉN ^{d}*nin-gi-rim-ma* EN ÉN
BAM 514 iv 43′	[*ša* ^{d}*gu-l*]*a* É[N NU DU$_8$] ⸢ÉN ^{d} *asal-lú-ḫi* ^{d}AMAR.UWTU⸣ É[N ^{d}*ni*]*n-*⸢*gi-rim-ma* EN ÉN⸣
BAM 510 iv 39	*u* ^{d}*gu-la* ⸢EN⸣ [A.Z]U*-ti i-di-ma ana-ku áš-ši* TU$_6$.EN
BAM 514 iv 44′	[....................*-t*]*i* ⸢*i-di-ma*⸣ [......] ⸢TU$_6$.EN⸣
BAM 510 iv 40	KA.INIM.MA ⸢*ḫa-a*⸣*-mu ḫu-ṣa-ba u mìm-ma ša* IGI.MIN *šu-li-i*
BAM 514 iv 45′	[KA.INIM.M]A ⸢*ḫa-a-mu ḫu-ṣa-ba*⸣ *u mìm-*⸢*ma*⸣ [IGI.MIN] ⸢*šu-li-i*⸣

Incantation: O you eyes are porous blood vessels (*pur-si-mi-it* MÚD *šu-har-ra-tú*)! Why have you picked up chaff, the *handabillu*-pebbles$^{?}$, *šuršurru*-fibre$^{?}$, the *alapû*-algae of the river, the clods from the streets (and) splinter from the latrine (i.e. refuse heap)? Why have you carried

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[65] The reading of the broken word might also be *ha-an-d*[*a-aš-pi-r*]*a* (so in Collins, "Natural Illness in Babylonian Medical Incantations," 216), but the spacing in the break seems to be too short for that.

> (them) along? Rain down like (a shooting) star (*zu-un-na-ni* GIN$_7$ MUL), drop down like a meteor (lit. fire, *mi-ta-q*[*u-ta*]-*ni* GIN$_7$ *nab-li*), before Gula's flint-razor and scalpel reach you (i.e. the eyes). An irreversible incantation, the incantation of Asalluhi and Marduk, the incantation of Ningirimma, mistress of incantations, and Gula, mistress of the medical skill; she casts (the spell) and I (the healer) carry (it) out. Incantation spell. Invocation for removing the chaff, splinter and anything (else) from the eyes.

The figurative language alludes to the fact that foreign objects have long gone into the eyes causing irritation, injuries and blood. Similar to the preceding incantation (*Example 5*), the *alapû*-algae metaphor appears again as imagery of the haze eye. The metaphors express the wish that the foreign objects should leave the human eye as swift as falling stars and flaming meteors. It is noteworthy that astronomical bodies and flora are also common themes of metaphors in modern medical literature.[66] The imperative 'rain down' conceptualizes the lachrymose eyes implying the swift washing out of the foreign objects.[67] Through this process the healing power of the tears, especially their capacity to remove foreign objects from the human eye, was vividly portrayed, as proof of the self-healing power of the eye. Thus, the human eye shall get better through tears, therapy, incantations and rituals, and crucially this shall happen before the flint-knife and the scalpel of Gula approach it. In other words, self-healing before surgery! The latter shows the fear of eye surgery that was both practiced and certainly painful and dangerous.[68]

The cloudy eyes, blurred vision or bloodshot eyes are common topics of incantations, where these conditions are due to foreign objects that caused irritations and injuries. The following example also comes from the IGI treatise chapter one:

Example 8[69]

BAM 510 iii 8 ÉN igi bar ig[i .... bar-r]a ⌜bar⌝-bar igi ḫuš igi ḫuš-ḫuš igi bar-ra ḫuš-ḫuš

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[66] G. Masukume and A. Zumla, "Analogies and Metaphors in Clinical Medicine," *Clinical Medicine* 12 (2012): 55.

[67] Geller, Ancient Babylonian Medicine, 92.

[68] Fincke, *Augenleiden*, 207–08, 294–97.

[69] BAM VI, no. 510, lines iii 8–14, BAM VI, no. 513, lines iii 9′–14′ [see CM 10, 68], BAM VI, no. 514, lines iii 13′–19′. The cuneiform edition here is based on work by Geller and Panayotov, but also takes into account works by Collins, "Natural Illness in Babylonian Medical Incantations," 214–16; Foster, *Before the Muses*, 968.

BAM 513 iii 13	ÉN igi bar igi bar-bar i[gi ....]
BAM 514 iii 13′	ÉN igi bar igi bar-bar igi bar-ra bar-bar igi ḫuš igi ḫ[uš-ḫuš i]gi bar-ra ḫuš-ḫuš
BAM 510 iii 9	igi bar n[á-a ....] igi bar ḫul-a IGI.MIN *a-pa-tu* IGI.MIN *a-ša-tu*
BAM 513 iii 14	igi-bar ná-a igi-ba[r ....]
BAM 514 iii 14′	igi-bar ná-a igi-bar da-a igi-bar ḫul-a IGI.MIN *a-pa-tu* IGI.MIN *a-ša-*[*tu*]
BAM 510 iii 10	IGI.MIN *pur-*[*sít* MÚD *šu-te-eṣ-li-p*]*a-*⸢*a*⸣*-tu am-mìn tab-ba-a* ⸢*am-mìn*⸣ *taš-šá-*⸢*a*⸣
BAM 513 iii 15	⸢IGI.MIN *pur-sít* MÚD⸣ [.......................... *tab-b*]*a-*⸢*a*⸣ ⸢*am-mìn taš-šá-a*⸣
BAM 514 iii 15′	IGI.MIN *pur-sít* MÚD *šu-te-eṣ-li-pa-a-tu am-mìn tab-ba-a am-mìn taš-šá-a*
BAM 510 iii 11	*am-mì-n*[*i* .... *ba-a-ṣ*]*u ša n*[*a-a-ri* ....]
BAM 513 iii 16	[...................................... *t*]*al-tal-lu-*⸢*ú*⸣ *šá* $^{\text{giš}}$GIŠIMMAR
BAM 514 iii 16′	*am-mì-ni ik-kal-ki-na-ši ba-a-ṣu ša na-a-ri tal-tal-lu-ú šá* $^{\text{giš}}$GIŠIMMAR
BAM 510 iii 12	*šá ti-*[*it-tu ni-iq-qa-š*]*a* [...]
BAM 513 iii 17	[................................IN.NU-*š*]*u al-si-ki-na al-ka-*[*ni*]
BAM 514 iii 17′	*šá ti-it-tu ni-iq-qa-šá šá a-ri-i* IN.NU*-šu al-si-ki-na-ši al-ka-ni*
BAM 510 iii 13	*ul a*[*l-si-ki-na-ši ul ta-la*]*-k*[*a-ni* ....]
BAM 513 iii 18	⸢*ul al-si*⸣*-*[*ki-na-ši* .... *it-b*]*a-*⸢*ki-na-ši* IM.1 IM.2 IM.3⸣ [......]
BAM 514 iii 18′	*ul al-si-ki-na-ši ul ta-la-ka-ni la-am it-ba-ki-na-ši* IM.1 IM.2 IM.3 IM.4 ÉN

BAM 510 iii 14	KA.[INIM.MA ....]
BAM 513 iii 19	KA.INIM.MA IGI GIG.GA.[…]
BAM 514 iii 19′	KA.INIM.MA IGI GIG.GA.KÁM

> Incantation: the open eye is a staring eye, the opened eye stares, the reddish eye is crimson eye, the opened eye is crimson. The open eye is drowsy, the open eye is *weak*, the open eye is harmed (lit. evil). O cloudy eyes, O blurred eyes, O eyes intersected by blood vessels! (IGI.MIN *pur-sít* MÚD *šu-te-eṣ-li-pa-a-tu*) Why are you cloudy? Why are you blurry? Why does the sand of the river, the pollen of the date palm cause you pain (*ik-kal-ki-na-ši* = it eats you)—(or) the fig's pollen, (or) chaff of straw? I called to you, come here (to hide)! Did I not call you? Will you not come here, before the south, north, east (and) west wind rise up against you? Incantation. It is an invocation for a sick eye.

The mantra introduction is the same as the one in *Example 5* (see discussion above). The rest of the figurative language alludes to the sand of the river, to the pollen in the air and to other particles of the flora, which cause eye sufferings if they penetrate the eye. On the one hand, one may assume that the words for sand, pollen, and chaff are metaphors for the foreign objects in general, but on the other hand, it could also be that these real foreign objects entered into the human eye and caused irritation. The word for 'to hurt' is a metaphorical extension of the verb *akālu* 'to eat,' and as a concept, it can be compared with the figurative language of the English expression a 'gnawing pain.'[70] The foreign objects cause pain that 'eats' the eye of the patient. The four winds, mentioned at the end of the incantation, are the natural carrier of these foreign objects. The theme of a wind causing injury is widespread in eye disease texts, and is also found in a bilingual incantation from the IGI treatise that describes etiology-explanatory techniques comparable to those of the *merḫu* incantations in *Examples 2 and 3* above:

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[70] J. Bourke, *The Story of Pain: From Prayer to Painkillers* (Oxford: Oxford University Press, 2014), 53–55.

Example 9[71]

BAM 510 iv 5f.	én an-na im ri-a igi lú-ka gig-ga ba-an-gar / *ina šá-me-e šá-a-ru i-zi-qam-ma ina i-in* LÚ *si-im-me iš-ta-kan*
BAM 513 iv 11f.	[é]n an-na im ri-a igi lú-ka gig-ga ba-an-gar / *ina šá-me-e šá-a-ru i-zi-qam-ma ina i-in* LÚ *si-im-me iš-ta-kan*
BAM 514 iv 10f.	⌜én⌝ an-na im ri-a igi lú-ka gig-ga ba-an-gar / *ina šá-me-e šá-a-ru i-zi-qam-ma ina i-in* LÚ *si-im-me iš-ta-kan*
BAM 510 iv 7f.	an-ta sù-da-ta im ri-a igi lú-ka gig-ga ba-an-gar / *iš-tu* AN-*e ru-qu-ti*
BAM 513 iv 13	⌜an⌝-ta sù-da-ta im ri-a igi lú-ka gig-ga ba-an-gar : *iš-tu* AN-*e ru-qu-ti*
BAM 514 iv 12f.	⌜an-ta sù-da⌝-ta im ri-a igi lú-ka gig-ga ba-⌜an⌝-gar / ⌜*iš-tu* AN-*e*⌝ *r*[*u*]-*qu-ti*
BAM 510 iv 9	igi gig-⌜ga⌝ gig-ga ba-an-gar : *ana i-ni mar-ṣa-a-ti si-im-me iš-ta-kan*
BAM 513 iv 14f.	⌜igi gig⌝-ga gig-ga ba-an-gar / [. . *i-n*]*i mar-ṣa-a-ti si-im-ma iš-ta-kan*
BAM 514 iv 14	⌜igi gig-ga gig-ga⌝ [. . . . .] / [. . *i-n*]*i m*[*ar-ṣa-a-ti si-i*]*m-me iš-ta-kan*
BAM 510 iv 10	lú-bi igi-bi lù-lù-a : *šá* LÚ *šu-a-tú i-na-šú da-al-ha*
BAM 513 iv 16f.	[lú-b]i igi-bi lù-lù-a / [*šá* LÚ *šu*]-⌜*a-tú*⌝ *i-na-šú da-al-h*[*a*]
BAM 514 iv 15	[. . . . .] / [. . . . . *i-n*]*a-šú* ⌜*da-al*⌝-*ha*

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[71] BAM VI, no. 510, lines iv 5–22, BAM VI, no. 513, lines iv 11–32, BAM VI, no. 514, lines iv 10–27. The cuneiform edition here is based on work by Geller and Panayotov, but also takes into account works by Foster, *Before the Muses*, 969; Geller, *Ancient Babylonian Medicine*, 95.

BAM 510 iv 11	igi-bi ⸢ba⸣-an-sùḫ-sùḫ : *šá i-na-šú a-šá-a*
BAM 513 iv 16f.	igi-⸢bi⸣ ba-an-sùḫ-sùḫ / *šá i-n*]*a-š*[*ú*] *a-šá-a*
BAM 514 iv 16	[......................] [..........] ⸢*a*⸣-*šá-a*
BAM 510 iv 12f.	lú-⸢u$_{18}$-lu⸣-bi ní-te-a-ni-šè ér gig ì-šéš-šéš / LÚ ⸢*šu*⸣-*ú ina ra-ma-ni-šú mar-ṣi-iš i-bak-ki*
BAM 513 iv 18f.	⸢lú-u$_{18}$-lu-bi ní-te-a-ni-šè ér gig ì-šéš-šéš⸣ / LÚ *šu-ú ina ra-ma-ni-šú mar-ṣi-iš i-b*[*ak-ki*]
BAM 514 iv 17f.	[......................ì-š]éš⸣-⸢šéš⸣
BAM 510 iv 14	lú-bi ⸢tu⸣-ra-a-ni ^{d}engur-ke$_4$ igi im-ma-an-sì : *šá* LÚ *šú-a-tú mu-ru-us-su* ^{d}MIN *i-mur-ma*
BAM 513 iv 20f.	lú-bi tu-ra-a-ni ^{d}engur-ke$_4$ igi im-m[a-an-sì] / *šá* LÚ *šú-a-tu$_4$ mu-ru-us-su* ^{d}MIN ⸢*i-mur-ma*⸣
BAM 514 iv 19	[..] / [........... *mu-ru-us-s*]*u* ⸢^{d}MIN *i-mur*⸣-*ma*
BAM 510 iv 15	gazi⸢^{sar}⸣ gaz-gá šu ù-me-ti : *ka-si-i ḫaš-lu-ti le-qé-ma*
BAM 513 iv 22f.	gazi^{sar} kum-mà ⸢šu⸣ ù-me-ti / *ka-si-i ḫaš-lu-ti le-qé-ma*
BAM 514 iv 20	[gazi^{sar} gaz-gá šu ù-me-ti] / [: *ka-si-i ḫaš-lu-ti le-qé*]-*ma*
BAM 510 iv 16	⸢tu$_6$-tu$_6$⸣ abzu-ta u-me-ni-sì : *ši-pat ap-si-i i-di-ma*
BAM 513 iv 24f.	tu$_6$-tu$_6$ abzu-ta ù-me-ni-sì / *ši-pat ap-si-i i-di-ma*
BAM 514 iv 21	[...........................] [.......... -*i i-di*]-*m*[*a*]
BAM 510 iv 17	i[gi l]ú-ka ù-me-ni-kešda : *i-ni a-me-li ru-kus-ma*
BAM 513 iv 26f.	igi lú-ka ù-me-ni-kešda / *i-ni a-me-li ru-kus-ma*
BAM 514 iv 22	[........................] / [................ -*m*]*a*$^{?}$

BAM 510 iv 18f.	[^{d}engu]r lú šu kù-ga-na igi lú-ba-ka šu tag-ga-ni-ta / [^{d}MI]N *ina* ŠU-*šá* KÙ-*ti i-in a-me-lì ina la-ba-ti-šá*
BAM 513 iv 28f.	^{d}engur lú šu kù-ga-⸢na igi⸣ l[ú-ba-ka šu tag-g]a-ni-ta / ^{d}MIN *ina* ŠU-*š*[*á* .... *l*]*a*-⸢*ba*⸣-*ti-šá*
BAM 514 iv 23f.	[..] / [..]
BAM 510 iv 20f.	[im ig]i lú-ka sù-sù igi-bi-ta ba-ra-an-è / [*ša-a*]-*ru šá i-in a-me-lì ud-du-pu ina i-ni-šú lit-ta-ṣi*
BAM 513 iv 30f.	im igi lú-[ka sù-sù igi-bi-ta ba-ra-a]n-è / *ša-a-rù šá* ⸢*i*⸣-[*in a-me-lì ud-du-pu ina i-ni-šú lit-t*]*a-ṣi*
BAM 514 iv 25f.	[..............................ba-ra-a]n-⸢è⸣ / [....................I]GI-*šú lit-ta-ṣi*
BAM 510 iv 22	[KA.I]NIM.MA IGI.GIG.GA.A.KÁM
BAM 513 iv 32	K[A.INIM.MA ....].⸢A⸣.KÁM
BAM 514 iv 27	[.............IG]I.GIG.GA.A.KÁM

> Incantation: The wind blew in the sky and caused lesions in a man's eye. From the distant sky, the wind blew in the sky and thus caused lesions in a man's eye. It caused lesions within the sick eyes! Regarding that man, his eyes are distressed, whose eyes are blurred. This man weeps bitterly by himself. It was that man's illness which the (goddess) Nammu noticed (and said): 'Take crushed *kasû*-plant, recite the Apsû incantation, (and) bandage the eyes of the man.' When Nammu is touching the man's eye with her pure hand, may the wind which has inflated the man's eye depart from his eye(s)! (Incantation!). It is an invocation for a sick eye.

The opening lines are an etiological explanation of why the sore settled in the eye of man. The bitter weeping indicates lachrymose eyes and suggests physical pain. No foreign objects are held responsible, but the wind alone is the ultimate cause of the sore, a metaphor both for the cause and the disease itself. Interestingly, in this incantation there is a short technical prescription, which prescribes a bandage with *kasû*-plant, a drug often found in eye therapy. The human healer is instructed to use the *kasû*-plant by the aquatic goddess Nammu. The mention of this water-divinity serves as a metaphor for rinsing of the sore eyes with pure water.

The theme of wind causing harm is further developed in another incantation from the IGI treatise chapter one:

Example 10[72]

BAM 510 iii 24	[...s]ùḫ igi sùḫ-sùḫ igi b[ar-ra ....]
BAM 513 iii 29	ÉN igi bar igi bar-bar igi bar-ra bar-⌜bar⌝ igi sùḫ igi sùḫ-sùḫ igi bar-ra sùḫ-⌜sùḫ⌝
BAM 510 iii 25	[............................... *in*]*a be-ru-ši-na* KUR-⌜*ú*⌝ [......]
BAM 513 iii 30	*ši-it-ta i-nu a-ḫa-tu ši-*[*na*]*-ma ina be-ru-ši-na* KUR-*ú pa-ri*[*k*]
BAM 510 iii 26	[........................... K]I. ⌜TA⌝-*nu-ši-na pi-ti*[*q-tú pat-qat*]
BAM 513 iii 31	UGU-*nu-ši-na ki-ṣir-tu* ⌜*kàṣ*⌝*-rat* KI.TA-*nu-ši-na pi-tiq-tú pat-*[*qat*]
BAM 510 iii 27	[................ *a-a*]-⌜*ú*⌝ NU I[M-*ši-na-ma*]
BAM 513 iii 32	*a-a-ú* IM-*ši-na-ma a-a-ú* NU IM-*ši-*[*na-ma*]
BAM 510 iii 28	[...................... *la*]-⌜*a*⌝ I[M *ti-bi-ši-na* (-*ma*?)]
BAM 513 iii 33	*a-a-ú* IM *ti-bi-ši-na a-a-ú la-a* IM *ti-b*[*i-ši-na* (-*ma*?)]
{Line intentionally skipped}	
BAM 513 iii 35	[KA.INIM.M]A IGI GIG.GA.A.K[ÁM ......]

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[72] BAM VI, no. 510, lines iii 24–28, BAM VI, no. 513, lines iii 25′–30′ [see CM 10. 68], BAM VI, no. 514, lines iii 28′–34′. The cuneiform edition here is based on work by Geller and Panayotov, but also takes into account works by Collins, "Natural Illness in Babylonian Medical Incantations," 206–07; Geller, *Ancient Babylonian Medicine*, 94.

> Incantation: The open eye is a staring eye, the opened eye stares, the blurred eye blurs vision, the opened eye is blurred! Two eyes, both are sisters, between whom a mountain is parked! Above whom the *'brow'* is knotted, below whom a mud-brick wall (= nose) is constructed! Which one is their (morbid) wind, which one is not their (morbid) wind? Which is the wind rising against them, which is a not a wind, rising against them? … [Incantation spell.] It is an invocation for a sick eye. Its ritual is like the (previous) one.

The opening lines visualize the sick appearance of the eyes, and should be compared to the mantra introductions of *Examples 5 and 8*. The close relationship and cooperative functioning of the two eyes results in a metaphoric description of them as sisters, separated from each other by a mountain. This is similar to the notion of the mud-brick wall from *Example 5*. The latter is an allusion to eyes not properly functioning, reinforced by the notion of a knot (lit. constriction) from above and a wall from below. All these seem to be metaphors for irritations, injuries and diseases associated with or caused by a windstorm, which carried foreign objects into the eyes. The notion of the mountain, which blocks the proper function of the eyes, may also be a hint for a wind coming from the mountains. The ultimate cause for the eye disease pictured in this incantation is the wind in general. Accordingly, Andrew George describes the "Wind-Blast" in an Old Babylonian diagnostic handbook as 'empirical etiology of symptoms':[73]

> ***Example 11***[74]
> AŠ *a-wi-lum ka-ap-pi i-ni-šu ik-bi-ru-ú-ma*
> *ù i-na-šu di-im-tam i-na-an-di-a ši-bi-iṭ* ⸢*ša-ri-im*⸣
>
> (If) a man's eyelids (*ka-ap-pi i-ni-šu*) have swollen and his eyes are shedding tears: (it is) Wind-Blast.

A wind can cause lachrymose eyes with swollen eyelids; the latter seems a common complaint.[75] The eye anatomy is described with a metaphorical extension of the word *kappu* 'lid' in eyelid (*ka-ap-pi i-ni-šu*), originally meaning a 'wing.'

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[73] George, Babylonian Divinatory Texts Chiefly in the Schøyen Collection, 86.

[74] CUSAS 18, 88 § 12′ (18′–19′).

[75] Fincke, *Augenleiden*, 253.

6 Vessel Metaphors

The eye anatomy and its appearance are also conceptualized through metaphorical extensions that convey bodily experience connected to social experience. For instance, the expression *purs*(*im*)*īt dāmi šuḫarratu* '(eye) vessel porous with blood' appears in the *Examples 5* (*reconstructed*) *and 7* above. This imagery is recorded from the second millennium BCE, spread not only in central Mesopotamia but also in the Syrian coast of ancient Ugarit and in the ancient Syrian city of Emar.[76] The word *pursītu* (by-form *pursittu* with its variants *pursindu* and *pursimītu*) is a loanword from Sumerian ^{dug}BUR.ZI.[77] It originally meant a 'bowl,'[78] which could be metaphorically extended for an 'eye-vessel,'[79] 'veins,' or 'blood-vessels'.[80] In addition, the adjective *šaharru/šuharru* 'porous', used for qualifying vessels, is also metaphorically extended for qualifying blood vessels in the human eye. Similar vessel imagery was also found in incantations against the 'evil eye,' as a metaphor for 'envy' or 'slander.'[81] The evil eye can be symbolically broken like potter's vessel or like a *pursītu*-bowl:

> ***Example 12***[82]
> *e-nu li-qa-ši-ma* GIN$_7$ *ta-l*[*u*] *pa-ḫa-ri ina pa-an* EN-*šá ḫi-ip-pa-ši*
>
> Take the (evil) eye and like the potter's *tallu*-vessel[83] smash it in front of his master!

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[76] Foster, Before the Muses, 967; D. Arnaud, Corpus des textes de bibliothéque de Ras Shamra, no. 737

[77] W. Sallaberger, Der babylonische Töpfer und seine Gefäße nach Urkunden altsumerischer bis altbabylonischer Zeit sowie lexikalischen und literarischen Zeugnissen. Mit einem Beitrag von M. Civil: HAR-ra = hubullu: Tablet X dug = karpatu (Ghent: University of Ghent, 1996), 98, 116.

[78] CAD P, 523–24.

[79] 'Adern' in Fincke, *Augenleiden*, 20, 226–28.

[80] For the Old Babylonian period see N. Ziegler, "Les vaisseaux sanguins et *Enûma eliš* VI: 5," *Le Journal des Médecines Cunéiformes* 5 (2005): 4–5.

[81] M. J. Geller, "Paranoia, the Evil Eye, and the Face of Evil," in *Literatur, Politik und Recht in Mesopotamien: Festschrift für Claus Wilcke*, ed. W. Sallaberger et al. (Wiesbaden: Harrassowitz, 2003), 118.

[82] The cuneiform edition here takes into account translations by E. Ebeling, "Beschwörungen gegen den Feind und den bösen Blick aus dem Zweistromlande," *Archiv Orientální* 17 (1949): 204–05, line 20; M. J. Geller, "Akkadian Evil Eye Incantations from Assur," *Zeitschrift für Assyriologie und Vorderasiatische Archäologie* 94 (2004): 55–56, line 20; Foster, *Before the Muses*, 962.

[83] The kind anonymous reviewer informs me that this line is not quoted in CAD T *tallu*, p. 99–102.

Similarly, the *pursītu*-bowl may be also used as an imagery of the 'evil eye' concept:

> ***Example 13***[84]
> $^{\mathrm{dug}}${SÌLA} bur-zi baḫar$_2$-ka tilla$_2$-a ⸢ḫé⸣-gaz-gaz
>
> (The 'evil eye') may be smashed (like) the potter's *pursītu*-bowl on the street!

The metaphor of 'breaking of a vessel' is more general and can also be applied for dispelling evil in general like demons in the next quote from Sumerian exorcistic incantations:

> ***Example 14***[85]
> dug-gin$_7$ ḫé-gaz-gaz
>
> May you (demon) be smashed like a vessel (DUG)!

Further corroborations of an eye metaphor as vessels can be traced in the lexical series Ugu-mu, where all body parts are listed from head to toe, starting with 'the top of my head' (Ugu-mu). The term GAKKUL[86] IGI, translated into Akkadian as *kakkulti īni*, means literary 'fermenting vat of the eye' or in other words an 'eye ball.'[87] The metaphor vat-opening-eye alludes to the round shape of the *kakkultu* (GAKKUL), as an ancient commentary to the anti-witchcraft series *Maqlû* '(Witch) Burning' suggests:

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[84] TCL 16, 89: 17 (pl. CLIX). M.-L. Thomsen, "The Evil Eye in Mesopotamia," *Journal of Near Eastern Studies* 51 (1992): 31–32, line 17.

[85] FAOS 12, 48: 515. See M. J. Geller, *Forerunners to Udug-Hul: Sumerian Exorcistic Incantations* (Stuttgart: Franz Steiner Verlag, 1985), 48, line 515; and compare to Geller, "Paranoia, the Evil Eye, and the Face of Evil," 133.

[86] GAKKUL was the Sumerian word *par excellence* for fermenting vat in beer production. See M. Stol, "Beer in Neo-Babylonian Times," in *Drinking in Ancient Societies*, ed. L. Milano (Padova: Sargon srl, 1994), 170–75.

[87] Couto-Ferreira, "Etnoanatomía y partonomía del cuerpo humano," 138–39; Civil, *The Lexical Texts in the Schøyen Collection*, 155, line 3:18. Understood as the 'Iris' by Fincke, *Augenleiden*, 257.

> ***Example 15***[88]
> *ma-a ḫu̯-ḫa̯-ru ana* ${}^{\text{giš}}$*kak-kul-li ma-šil* …. ⌜SUḪ̯UŠ?-*šú*?⌝ DAGAL KA-*šú qa-ta-an*
>
> (One says that) a *ḫu̯ḫ̯āru*-bird trap resembles a wooden *kakkullu*-vat, … whose base is wide and whose opening narrow.

Miguel Civil describes the GAKKUL as 'a rather paunchy vessel with a narrow opening.'[89] The pupil, the iris, or the eye socket was thereby metaphorically compared to the opening of the vat. The shape of the fermenting vat is one of the associations that led to the metaphorical extension of conceptualizing the shape of the human eyeball as a GAKKUL. Perhaps, it is even more essential that both a vessel and the eyes contain fluids. The latter highlights links between bodily and social experience. The usage of *kakkulti īni* entered also into diagnostic texts, describing a dark, gloomy condition of the left and the right eyeballs:

> ***Example 16***[90]
> DIŠ SA *kak-kul-ti* IGI 15-*šú* GE$_6$.MEŠ
>
> If the veins of his right eyeball are dark.

Considering the allusion between a beer fermenting vat and an eyeball, it is hardly a coincidence that *qadūtu* 'mud' can designate beer dregs, as well as be metaphorically extended to refer to a harming 'deposit' in the eyes.[91] Moreover, other vessels as *ḫ̯uptu* 'metal bowl' and *ašnu* 'bowl' also designate the eyehole.[92] This imagery alludes to the anatomy of the eye, possibly referring to the social experience of seeing a human skull or a person without an eye. In such a situation, the eyehole resembles the form of a bowl and its empty space inside.

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[88] KAR 94: 26′–27′. The cuneiform edition here takes into account translations by E. Frahm, *Babylonian and Assyrian Text Commentaries: Origins of Interpretation* (Münster: Ugarit-Verlag, 2011), 385–87; and by T. Abusch, *The Magical Ceremony Maqlû: A Critival Edition* (Leiden/Boston : Brill, 2016), 394 : obv. 27'-28'. Additional literature <http://ccp.yale.edu/P369075>.

[89] M. Civil, "A Hymn to the Beer Goddess and a Drinking Song," in *Studies Presented to A. Leo Oppenheim*, ed. R. D. Biggs and J. A. Brinkman (Chicago: University of Chicago Press, 1964), 83–84.

[90] CT 37, 50b: 14′. Cf. Couto-Ferreira, "Etnoanatomía y partonomía del cuerpo humano," 139.

[91] Fincke, *Augenleiden*, 129.

[92] M. Stol, "Review of G. Bardet et al. Documents administratifs de la Salle 135 du Palais de Mari, transcrits et traduits by Jean-Robert Kupper; Archives administratives de Mari," *Journal of the American Oriental Society* 106 (1986): 357.

Other cases of vessel metaphors are to be traced in a lexical list concerned with pottery products. The *ukurigû*-vessel (DUG.UGUR$_2$ $^{\text{ú-kur}}$ .IGI) is a loan from the Sumerian ugur$_2$-igi, which is translated *šūr īni* 'eyebrow' in Akkadian.[93] Presumably, the *ukurigû*-vessel had a rim resembling the eyebrow or vice versa. Additionally, the word *kibru* 'shore' can designate a rim of a vessel and can also metaphorically refer to an anatomical part of the eye, probably the margin of the eye, or the lids.[94] These examples illustrate cultural associations between a social experience of living with different kinds of vessels and observations of the human eye.

7 Finger and Eye Movement Metaphors as a Diagnostic Hint

In the diagnostic handbook, the anatomy of the sick human eye is described in comparison with another body part:

> ***Example 17***[95]
> DIŠ SA IGI.MIN-*šú* GIN$_7$ ŠU.SI *kub-bu-u*[*r*$^?$ …]
>
> If the veins of his eye are very thick like a finger.

This metaphor conceptualizes the appearance of the eye veins, and alludes to their great thickness compared to the human finger. This figurative language is based only on bodily experience linking one body part to another one. In the diagnostic work below, we see other figurative language conceptualizing the movement of the human eye:

> ***Example 18***[96]
> DIŠ UD-*ma* UD.DU-*šú* IGI-*šú šá* 150 GIN$_7$ $^{\text{giš}}$B[AL *ilammi*] IGI-*šú šá* ZAG MÚD DIRI-*at*
>
> If, at the time he (the demon 'Lord of the Roof') overwhelms him: his left eye circles like a spindle, his right eye is full of blood.

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[93] Sallaberger, *Der babylonische Töpfer und seine Gefäße*, 53–54; with Civil's contribution on p. 146, line 247.

[94] 'Liedrand' in Fincke, *Augenleiden*, 223, 252, 254.

[95] CT 37, 50b: 9′. Cf. R. Labat, *Traité akkadien de diagnostics et pronostics médicaux* (Paris: Académie internationale d'histoire de sciences, 1951), 50, iv G: 9.

[96] STT I 89 ii 109–110. Cf. M. Stol, *Epilepsy in Babylonia* (Groningen: Styx Publications, 1993), 16, 91–92.

This metaphor links the movement of the eye, after a demonic attack, to the motion of the spindle. It describes a common domestic scene that people experienced often, which was linked to eye movements. This imagery from diagnostic handbooks clearly addresses only the physician, who had to imagine how the patient's eye is turning like a spindle,[97] or, as *Example 17* above shows, to imagine the patient's eye veins as thick as a finger. The latter was a hyperbole, of course, since such a great thickness is barely possible. Such passages were not only medical omens serving to diagnose the state of the patient, but on another level, they were also important teaching aids for the apprentices who studied healing arts, memorizing prescriptions, incantations and medical rituals through copying cuneiform tablets.

8 Plant Metaphors

As we saw above, *merḫu* 'kernel' was used metaphorically to designate visible kernel-like eye sufferings in the eye (*Examples 2 and 3*). There are also other similar cases. *Murdinnu* was a name of a plant like 'bramble' or 'berry' that was metaphorically extended to designate a medical condition,[98] which must have resembled the *murdinnu* in appearance. Also, the *baluḫḫu* plant, which may have been *Ferula gummosa* or its gummy resin (mentioned in *Example 4* above), was metaphorically extended to indicate possibly granules in the eyes that look like the *baluḫḫu* resin.[99] Not only sick appearance but also eye anatomy was described through plants. In diagnostic commentaries *karān īni* 'grape of the eye' refers possibly to the iris that looks like a grape.[100]

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[97] See another spindle-movement simile: "A false accuser rolls his eyes like a spindle" in M. Stol, *Women in the Ancient Near East* (Berlin/Boston: de Gruyter, 2016), 32.

[98] Similar cases in other cultures as well as the *murdinnu* problem are thoroughly discussed by Attia, "Traduction et commentaires des trois premières tablettes de la série IGI," 55f.; The plant *murdinnu* was an important eye condition, which was also included in the name of the second chapter of the Nineveh treatise on sick eyes, see paragraph 2, AMC 8 above.

[99] Full discussion by Attia, "Traduction et commentaires des trois premières tablettes de la série IGI," 32f.

[100] Thanks are due to the anonymous reviewer for drawing my attention to the metaphor *karān īni*, references are collected by H. Hunger, *Spätbabylonische Texte aus Uruk, Teil* I (Berlin: Gebr. Mann Verlag, 1976), no. 40: 8.

9 Worms

Eye sufferings were compared with parasitic worms called *qūqānu* in Akkadian. Let us observe the next example coming from the first chapter of the Nineveh treatise dealing witch sick head, in short UGU:

Example 19[101]

i 1 DIŠ NA UGU-*šú* KÚM *ú-kal* SA ZI SAG.KI TUK-*ma* IGI.MIN-*šú i*-BÀR
i 2 IGI.MIN-*šú bir-ra-ta*$_5$ *i-pi-ta*$_5$ *i-ši-ta*$_5$ *mur-din-na qù-qa-na a-šá-a*
i 3 *ù* ÉR ŠUB.ŠUB-*a* 1/3 SÌLA ZÀ.ḪI.LI *bu-ṭu-ta*$_5$ *ina* ^{na4}UR$_5$ ÀRA-*en* SIM
i 4 SAG-*ka ú-kal ina* ŠÀ 1/3 SÌLA TI-*qé ina* A GAZI^{sar} SILA$_{11}$-*aš* SAR-*ab* LAL-*ma* UD.3.KAM NU DU$_8$

> If a man's cranium/brain holds *ummu*-fever, he has throbbing temple vein, his eyes blink, his eyes are blurred with dimness, cloudiness, blurring of the vision, *murdinnu*-bramble, *qūqānu*-worm, and are constantly tearing: you grind up one third litre of *saḫlû*-plant (and) *buṭutta*-terebinth with a grindstone (and) sift (them). Once ready for you: you take one third litre out of it (the mixture prepared above), knead (it) in the sap of *kasû*-plant. You shave (his head), bandage it (with it), and he shall not remove (the bandage) for three days.

Next to the *murdinnu* metaphor (from chapter 8), the *qūqānu* 'parasite worm' describes eye suffering resembling a worm. According to Annie Attia such sufferings might be dark speckles on the conjunctiva or secretions that look like *qūqānu* worms.[102] The imagery that a worm or a leech could cause eye disease was a familiar topic already addressed in an Old Babylonian incantation:

Example 20[103]

1 ^{d}*A-nu ir-ḫi-a-am ša-me-e ša-mu-ú er-ṣe-tam ul-d*[*u-n*]*im*
2 *er-ṣe-tum ú-li-id bu-*⸢*ša*⸣*-am bu-šum ú-li-id lu-ḫu-ma-a-am*

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[101] BAM 480 i 1–4. Cf. Scurlock, Sourcebook for Ancient Mesopotamian Medicine, 307. For additional information on UGU see Panayotov, "Fragments of the Nineveh Medical Composition IGI join UGU," 59–67.

[102] Full discussion by Attia, "Traduction et commentaires des trois premières tablettes de la série IGI," 57f.

[103] YOS 11, 5a. Modified slightly after the Seal Project 5.1.26.2, where the relevant literature has been collected.

3 *lu-ḫu-mu-um ú-li-id zu*$^{!}$*-ba*$^{!}$ *zu*$^{!}$*-u*[*b*]*-bu ú-li-id tu-ul-tam*
4 *tu-ul-tum* ⸢DUMU$^{!}$.SAL$^{!}$ ^{d}⸣*Gu-la lu-ul-lu-um-tam lu-ub-bu-ša-at da-mi ḫa-ab-ra-at*
5 *a-*⸢*ak*$^{?}$⸣-[*ki*$^{?}$]*-lu da-mi ṣe-eḫ-ri-im ú-pé-el-li-a-am i-ni-i-šu*

Anu begot the sky, the sky gave birth to the earth, the earth gave birth to the stench, the stench to the mud. The mud gave birth to the fly, the fly to the "worm". The "worm", the daughter of Gula, is clad in a *lullumtum*-garment, thickened with blood. The devourer of the child's blood is reddening his (the patient's) eyes.

Similar to the *merḫu* historiola in *Examples 2 and 3* above, the *tūltum* 'worm, leech' is a divine creation grown on earth and created out of the mud. The bite of a such creature could cause eye reddening as described in medical literature.[104] On the other hand, *tūltum* 'worm, leech' might be a metaphor similar to the *qūqānu*.

10 Conclusion

Figurative language is very important for conceptualizing harms and diseases. The imagery invents another setting in another dimension, making each medical case more understandable for the patient. Humanly, it is helpful for one's bodily awareness to be communicated by means of words from one's social settings. Mesopotamian figurative language for the sick human eye helps explain medical knowledge in indicating the colour and general appearance of the sick eye, as well as conveying the imagery of unhealthy eye movements. Anatomical metaphors of the eye allude to various kinds of vessels borrowed from the material culture. On the other hand, plants and worm metaphors were also used to refer to certain medical conditions with their symptoms.

Figurative language in the medical incantations above had significant psychological effects on the patient, since these metaphors served as a means of communication among the healer and patient. Eye disease and sufferings were vividly portrayed by metaphors, so that the patient could visualize his condition with relatable examples from his surrounding world. Similarly, modern metaphors enhance similar forms of communication between healers and patients.[105] Thus, the metaphors from the incantations are comparable to figurative language modern doctors use to explain the suffering to the patient. On the other hand, medical metaphors certainly had a pedagogic purpose similar to *Eselsbrücken* (mnemonic tricks), serving as teaching aids for easily memorizing terminology. Such allusions were part of the knowledge transfer in teaching, communicated in the curriculum, and transmitted through copying tablets. This scenario is not unfamiliar in the history of medicine. In the 19th and 20th centuries CE, 'metaphors served as teaching aids' in medical textbooks,[106] and are helpful for understanding modern medical concepts and illnesses.[107]

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[104] N. Wasserman, "On Leeches, Dogs, and Gods in Old Babylonian Medical Incantations," *Revue d'Assyriologie* 102 (2008): 77, 87 fig. 7.

Conceptual metaphors based on natural observations seem timeless. Expressions like 'cloudy' eyes in Akkadian represent the same metaphor as 'cloudy' eyes in English. Also, the concept of *akālu* 'to eat,' or 'to hurt' can be easily associated with the expression a 'gnawing pain' (discussion after *Example 8* above). The *merḫu* 'barley kernel' metaphor reminds us strongly of the German *Gerstenkorn* 'barley grain'-eye condition, French *orgelet* 'small barley,' or *ечемик* 'barley (grain)' in Bulgarian (discussion after *Example 3* above). Significantly, all these terms might designate a 'sty,' alluding to the shape of the grain. Moreover, conceptual metaphors based on material culture have similarities both now and then. There are clear conceptual parallels in the English word vessel and blood vessel, or *Gefäss* in German and *Blut-Gefäss*, if compared with the Mesopotamian blood vessels metaphors of the eye (see paragraph 6). Metaphors, analogies and similes associated with the pupil, granules, vessels, astral bodies, plants, or animals play significant role in different societies and languages for conceptualizing anatomy and illness.

Is this a pure coincidence or is there something in common? These similarities are not because of an indirect contact or influence; they are due to a 'common form of starting (human) software,'[108] and language use. Accordingly, the Mesopotamians used figurative language pretty much like we do. Yet, the imageries can also be quite different since they are culturally contextualized. The similarities in the ancient and modern concepts and language are, henceforth, both based on long human social experience and bodily observations, which are more clearly expressed and transmitted with the help of metaphors, analogies and similes. They all have universal communication power during the explanation of the harm, healing process or teaching, transferring concepts and images to the patients, healers and apprentices.

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[105] Casarett et al., "Can Metaphors and Analogies Improve Communication?" 255, 259.

[106] Masukume and Zumla, "Analogies and Metaphors in Clinical Medicine," 55.

[107] Kanthan and Mills, "Using Metaphors, Analogies and Similes as Aids," 20, 26. H. Korkmaz and Y. Y. Senol. "Exploring First Grade Medical Students' Professional Identity Using Metaphors: Implications for Medical Curricula," *Medical Education Online* 19 (2014), http://med-ed-online.net/index.php/meo/article/view/20876 (accessed May 06, 2017).

[108] Finkel, *The Ark Before Noah*, 41–83, esp. 42; E. Douek, "Ancient & Contemporary Management in a Disease of Unknown Aetiology," in *Disease in Babylonia*, ed. I. L. Finkel and M. J. Geller (Leiden: Brill, 2007), 215–18.

Abbreviations and Internet Links

CAD	*The Assyrian Dictionary of the Oriental Institute of the University of Chicago* <https://oi.uchicago.edu/research/publications/assyrian-dictionary-oriental-institute-university-chicago-cad> (accessed May 03, 2017).
CDLI	*Cuneiform Digital Library Initiative* <http://cdli.ucla.edu> (accessed May 03, 2017).
CCP	*Cuneiform Commentaries* Project <http://ccp.yale.edu> (accessed May 06, 2017).
SEAL	*Sources of Early Akkadian Literature* <http://www.seal.uni-leipzig.de> (accessed May 03, 2017).
DNMS	*Digitale Nah- und Mittelost-Studien, Sumerische Glossare und Indizes* <http://dnms.org/apps/sgi> (accessed May 03, 2017).

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CHAPTER 8

The Experience and Description of Pain in Aelius Aristides' *Hieroi Logoi*

Janet Downie

The *Hieroi Logoi*, or "*Sacred Tales*," of Aelius Aristides (117–181 CE) offer a rare first person account of the experience of illness from the Greco-Roman world. Surprisingly, however, the text does not feature vivid metaphorical evocations of the pain of illness. One reason for the marked lack of metaphor in Aristides' narration of physical crises is that when he describes episodes of acute pain, he adopts the double perspective of sufferer and observer, patient and doctor. Instead of using metaphor to open up his experience to shared interpretation, he maintains strong control of his illness narrative and its interpretation.

1 Introduction

We have very little access to the experience of patients in Greco-Roman antiquity, and virtually no first-person access to the experience of physical pain in particular.[1] For this reason, the evidence of the second century CE writer

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[1] R. Rey, *The History of Pain*, trans. L. E. Wallace, J. A. Cadden and S. W. Cadden (Cambridge, Massachusetts: Harvard University Press, 1995), Chapter 1, surveys the representation of pain in ancient Greco-Roman literature, especially epic and tragedy, as well as its place in Hippocratic and other medical texts. Rey also deals with Epicurean and Stoic philosophical approaches to pain. For other overviews, see H. King, "The Early Anodynes: Pain in the Ancient World," in *The History of the Management of Pain*, ed. R. D. Mann (Carnforth: Parthenon Publishing Group, 1988); H. King, "Chronic Pain and the Creation of Narrative," in *Constructions of the Classical Body*, ed. J. I. Porter (Ann Arbor: University of Michigan Press, 1999), 269–86; P. Horden, "Pain in Hippocratic Medicine," in *Religion, Health and Suffering*, ed. J. R. Hinnells and R. Porter (London: Kegan Paul International, 1999), 295–315; N. Wilson, "The Semantics of Pain in Greco-Roman Antiquity," *Journal of the History of the Neurosciences: Basic and Clinical Perspectives* 22 (2013): 129–43; L. Villard, "Vocabulaire et représentation de la douleur dans la *Collection hippocratique*," in *Penser et représenter le corps dans l'Antiquité*, ed. F. Prost and J. Wilgaux (Rennes: Presses universitaires de Rennes, 2006), 61, http://books.openedition.org/pur/7322 (accessed 9 March 2015); S. Byl, "Le Traitement de la douleur dans

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Aelius Aristides is attractive and valuable.[2] A member of the cultural elite of the Roman province of Asia, Aristides produced a substantial body of literary work, including speeches, epistles, treatises, and prose hymns that were read and studied with appreciation in the late ancient and Byzantine world. He also produced one more idiosyncratic text: a memoir, in six books, known as the *Hieroi Logoi*, or "Sacred Tales." In the *Hieroi Logoi*, Aristides tells his own story of long-term illness and therapy and of the intimate relationship he cultivated with the healing god Asclepius: "For each of our days, as well as our nights," he writes, "has a story, if someone who was present wished either to record the events or to narrate the providence of the god …"[3] The text includes a lengthy account of abdominal problems and other health issues, and details the prescriptive advice he received from Asclepius, primarily in dreams, for "countless thousands of medicines."[4]

His first-person narrative deals at length, and in considerable detail, with health crises that Aristides took very seriously. Yet, if we come to the *Hieroi Logoi* expecting to find intimate descriptions and vivid metaphorical evocations of the pain of illness, we are likely to be disappointed. Aristides frequently writes that his experience was "unspeakable" or "indescribable," but only on rare occasions do we glimpse a sort of real-life Heracles, overcome by agony, or a latter-day Odysseus, struggling for his life—let alone a merely human individual detailing the fear, uncertainty, and frustration that often accompanies both chronic illness and acute pain. When Aristides does dwell on his experi-

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le *Corpus Hippocratique*," in *Tratados Hipocraticos*, ed. J. A. Lopez-Ferez (Madrid: Universidad Nacional de Educacion a Distancia, 1992).

[2] H. King ("The Art of Medicine. Narratives of Healing: A New Approach to the Past?" *The Lancet* 383 (2014): 947) identifies the *Hieroi Logoi* as "a rare example of an ancient patient's description of his suffering."

[3] *Or.* 47.2. The six *Hieroi Logoi* (five complete discourses and a fragmentary sixth) are numbered as *Orations* 47–52 in the Greek edition of Aristides' corpus by B. Keil, ed., *Aelii Aristidis Smyrnaei Quae Supersunt Omnia* (Berlin: Weidmann, 1958 [1898]); and in English translations by C. A. Behr (trans. *P. Aelius Aristides: The Complete Works*, Vols. 1 and 2 (Leiden: Brill, 1981–1986); *Aelius Aristides and the Sacred Tales* (Amsterdam: Adolf M. Hakkert, 1968); and "Studies on the Biography of Aelius Aristides," *Aufstieg und Niedergang der Römischen Welt* II.34.2 (1994): 1140–233). Translations from the *Hieroi Logoi* are my own, based on Keil's text, and with reference to translations by Behr and by A.-J. Festugière (*Discours sacrés: Rêve, religion, médecine au IIe siècle après J.-C.*, Paris: Éditions Macula, 1986; "Sur les 'Discours Sacrés' d'Aelius Aristide," *Revue des Études Grecques* 82 (1969): 117–53; and *Personal Religion Among the Greeks*, Berkeley: University of California Press, 1954).

[4] *Or.* 47.10.

ence of pain, he does so from a strangely mixed perspective—at once sufferer and observer, patient and doctor.

It is this split perspective, I propose, that accounts for the marked lack of metaphor in Aristides' narration of physical crises. The text is full of diagnostic and prophetic dreams, as well as divine prescriptions for healing—many of which invite metaphorical interpretation, both on Aristides' part and on the part of the reader. Yet, when it comes to episodes of pain, Aristides does relatively little to encourage his readers' imaginative engagement. He tells his audience of his pain and sometimes describes its origins, progress, or effects, but he rarely faces what Elaine Scarry and others have argued is the distinctive challenge of pain: putting highly subjective experience into words.[5] In both literary and medical contexts, sufferers frequently reach for metaphorical expressions, attempting to bridge the gap between internal experience and its external representation in language, and between themselves and their interlocutors. In the *Hieroi Logoi* Aristides does not make this communicative attempt. Instead of using metaphor and imagery to open up his experience to shared interpretation, he offers descriptions of pain that already contain both experience and explanation. Paradoxically, while he makes a performance of pain, he also holds readers at arm's length from his experience.

Drawing attention to the split between subjective and objective perspectives in Aristides' descriptions of pain brings into focus one of the problems at the center of scholarly discussion of the *Hieroi Logoi*: the relationship between the individual and the typical.[6] Long dismissed as eccentric and self-indulgent, the *Logoi* are still frequently approached as a text that offers insight into personal experience and the psychology of an ancient individual.[7] On the other hand, over the past few decades, scholars have increasingly worked to incorporate Aristides' account into the body of evidence we have for common healing practices of the imperial period.[8] These two perspectives are not incompatible, and in fact their coexistence points to precisely the most compelling feature of the *Hieroi Logoi*: the relationship between the individual and his social context.[9]

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[5] E. Scarry, *The Body in Pain: The Making and Unmaking of the World* (Oxford: Oxford University Press, 1985).

[6] O. Weinreich, "Typisches und Individuelles in der Religiosität des Aelius Aristides" in *Ausgewählte Schriften I* (*1907–1921*) (Amsterdam, 1969), 298–310.

[7] L. Quattrocelli ("Aelius Aristides' Reception at Byzantium: The Case of Arethas," in *Aelius Aristides Between Greece, Rome, and the Gods*, ed. W. V. Harris and B. Holmes (Leiden: Brill, 2008), 279–98) presents the manuscript scholia that show that some Byzantine readers found the *Hieroi Logoi* self-indulgent. Assessments of the text as "primitive" (A. Lesky, *A History of Greek Literature*, trans. J. Willis and C. de Heer (New York: Crowell, 1966), 836) and as a failed example of "psychological autobiography" (G. Misch, *A History of Autobiography in Antiquity*, trans. E. W. Dickes (Cambridge, Massachusetts: Harvard University Press, 1950), 503 and 508) continued well into the twentieth century. Recent rethinking of the concept and function of autobiography, however, has led to more sympathetic interest. See for example King ("The Art of Medicine. Narratives of Healing"), who reads the *Hieroi Logoi* as an example of "autopathography" or "autosomatography," and J. Perkins (*The Suffering Self: Pain and Narrative*

While scholars often take the personal nature of the text as a starting point for interpretation and then proceed to consider the place of individual, subjective experience in religious or medical practices of the time, my aim in this chapter is to reconsider that starting point: how much of his subjective perspective does Aristides communicate in this text, to what end, and in what way? I argue that the position he crafts for himself is one that allows him to move between the roles of patient and physician. This can be illustrated from a wide range of episodes in the *Hieroi Logoi.* I focus here, however, on those moments in which we would most expect to find him reverting to the personal and private perspective: moments of pain. Here, instead of exploiting the possibilities of metaphor to convey interior experience to his external audience, he mostly avoids metaphorical description, instead alternating between the positions of suffering patient and observer.

In what follows, I first show that Aristides creates his double role as patient and observer by establishing a temporal perspective that shifts between the immediate and the retrospective, and a narrative style that vacillates between

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Representation in the Early Christian Era, London: Routledge, 1995) who considers how his body contributes to Aristides' sense of self.

[8] Important recent contributions include A. Petsalis-Diomidis, *Truly Beyond Wonders: Aelius Aristides and the Cult of Asklepios* (Oxford: Oxford University Press, 2010), who argues that Aristides' account of divine healing demonstrates the contemporary importance of the cult of Asclepius at Pergamum and the importance of healing cults to individuals across the social and economic spectrum; I. Israelowich, *Society, Medicine and Religion in the* Sacred Tales *of Aelius Aristides* (Leiden: Brill, 2012) situates Aristides' engagement with Asclepius in the broader context of contemporary medicine, arguing that the *Logoi* can help to illuminate what we might call the "medical marketplace" or the "health care system" of the Roman imperial world. See also E. R. Dodds (*The Greeks and the Irrational*, Berkeley: University of California Press, 1951; and *Pagan and Christian in an Age of Anxiety*, New York: W. W. Norton, 1965) who situated Aristides' "curious symbiosis" with the god in the context of imperial-era developments in pagan religious practice.

[9] Briefly setting the *Hieroi Logoi* in the context of modern approaches to medical narrative, King ("The Art of Medicine. Narratives of Healing") reminds readers that Aristides' text, like all examples of "autopathography" or "autosomatography" reflects the interaction between the individual and his socio-cultural context.

the precise and the vague. He writes in the first-person voice of the patient, but also draws on the Hippocratic tradition for the perspective of the observing physician, especially in the first *Logos*, where pain appears exclusively as a diagnostic tool. In the third section of the chapter, I situate Aristides' perception of the gap between patient and physician perspectives in the context of contemporary debates about the place of subjective pain-description in the diagnostic scenario. The second-century physician Galen is skeptical about the communicability of pain, and he argues strongly against recourse to metaphor in the diagnostic setting, because such language is not sufficiently precise and clear. The opaque quality of pain—which for Galen is a problem—is a reality that Aristides exploits in his own way. I argue in the fourth part of the chapter that in his more complex descriptions of pain, Aristides bridges the gap of understanding that might otherwise have been filled by metaphor, in order to maintain control over his illness narrative and its interpretation.

2 Aristides as Patient and Observer

Illness provides the narrative frame for the *Hieroi Logoi*, as well as much of the material for the stories Aristides tells about himself in this first-person account. The first *Logos* (*Or.* 47) is entirely taken up with details of dreams, symptoms, and treatments, while the second and third *Logoi* tell the story of Aristides' sojourn at the temple of Asclepius in Pergamum and relate a number of key illness episodes in his life: the respiratory problems that brought him to Asclepius in the first place, his experience of the plague at Smyrna in 165 CE, a dramatic seizure and other crises.[10] In the fourth and fifth *Logoi*, Aristides' professional narrative dominates—but this too is framed by prescriptive dreams and by his ongoing interactions with Asclepius.[11] Illness and healing, then, furnish the substance of the text, and they also provide an interpretive key for the stories Aristides tells about his activities in the public and professional realm. His illness and treatment enable Aristides to claim that he has lived his life under the protection of Asclepius, and he sees this protection as extending from his physical body to all his intellectual endeavors. As he says in the fifth *Logos*, it would be "misplaced" (*atopon*), since he has described so many of the god's physical cures, "to pass over in silence" those of the god's deeds "that at the same time raised up my body, strengthened my soul, and increased the glory of my oratory" (*Or.* 36). As Aristides looks back over some two decades of his life, he presents his healing relationship with Asclepius as the engagement that makes sense of all his other pursuits.[12]

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[10] *Or.* 48.5–7; 48.38–45; 49.16–20.

[11] J. Downie, *At the Limits of Art: A Literary Study of Aelius Aristides'* Hieroi Logoi (Oxford: Oxford University Press, 2013), Chapter 5. L. Quattrocelli ("Il pubblico dei *Discorsi Sacri* di Elio Aristide," in *Discorsi alla prova*, ed. G. Abbamonte, L. Miletti, and L. Spina (Naples: Giannini, 2009), 269–70 and 276) proposes that Aristides composed the different *Logoi* for different audiences with varying levels of engagement in the spheres of rhetoric, politics, and the cult of Asclepius.

Thus, while the text is centrally concerned with Aristides' personal and subjective experience of illness, and while it includes descriptions of suffering, both physical and mental, the real point of the *Hieroi Logoi* is not simply to describe, but to make sense of that experience. As Helen King has argued, it is the god who provides the narrative that makes the experience of illness meaningful and, in precisely this way, performs a therapeutic function: he makes physical suffering comprehensible and therefore bearable.[13] Judith Perkins has taken this further, arguing that suffering becomes, for Aristides, a central and positive component of his identity. She sets the *Hieroi Logoi* among a group of contemporary texts—including Galen's medical writings, Christian martyr narratives, and some of the Greek novels—through which, she argues, we can trace a shift, in the imperial and early Christian period, towards a new sense of the value of physical suffering for the formation of the human individual and his or her social identity.[14] While Perkins ultimately makes the case for a change of mentality at the level of the whole society, she regards Aristides' *Logoi* specifically as an expression of individual affect and psychology reflecting this wider social change. Like King, then, Perkins approaches Aristides' text primarily as a description of subjective experience, in which we see an example of how one individual reflects upon the pain and hardship of illness and makes sense of it.[15]

The *Hieroi Logoi* are not, however, primarily a document of personal self-reflection. Writing for performance and publication, Aristides aimed to control the interpretation of his life's story, including his illness. The *Logoi* are addressed explicitly to Asclepius himself, who has, apparently, insisted upon receiving an account of Aristides' experience. They are also addressed to an audience of contemporaries and of readers in posterity: Aristides gestures to this public at various points in the text, and is quite self-conscious about the fact that this is a written account.[16] Thus, he is attempting not only (perhaps not even primarily) to make sense of his experience for himself, but also to craft a personal narrative for listeners and readers. One indication of his self-consciousness in this regard is the fact that he combines subjective and objective points of view, describing illness—and pain in particular—both from his own perspective as sufferer and from the perspective of an external observer.

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[12] M.-H. Quet, "Parler de soi pour louer son dieu: Le cas d'Aelius Aristide," in *L'invention de l'autobiographie*, ed. M.-F. Baslez, P. Hoffman, and L. Pernot (Paris: Presses de l'École normale supérieure, 1993), 211–51. Baumgart (*Aelius Aristides als Repräsentant der sophistischen Rhetorik*, 110) proposes that Aristides intended the medical content of the early parts of the text as a "vehicle" to prepare audiences for the more substantial and lengthy discussion of his professional career.

[13] H. King, *Hippocrates' Woman: Reading the Female Body in Ancient Greece* (London: Routledge, 1998), 130.

[14] Perkins, *The Suffering Self*, 7–9, 12.

[15] "The Tales constructed a subjectivity around what is essentially a body, and in particular a suffering body." *Ibid.*, 176.

Aristides' dual perspective as patient and observer manifests in two ways in the text. First, on the macro-level, the narrative of the *Logoi* combines two temporal registers: many descriptive passages recreate the scenarios of illness with a sense of personal immediacy, but the text as a whole is presented as a retrospective account. Second, Aristides' narrative style shifts continually: he includes moments of precise and intimate detail, but frequently leaves the overall picture somewhat vague. These two features of the text—the dual temporal register and varied narrative style—are pragmatically related: because Aristides' illness extended over some two decades, he blames the passage of time for the obscurity of some of the more remote details. However, they also mirror one another in a different way: Aristides' vacillation between two temporal perspectives and two narrative styles reflects the fact that Aristides both experiences and observes his illness. In the medical context, this means he adopts the roles of both patient and physician.

This dual perspective comes into focus when Aristides describes the onset of his illness at the beginning of the second *Logos*. His troubles began during a professional journey to Rome around 144 CE, and he was forced to return home to Asia Minor earlier than expected (*Or.* 48.5):

> When I was brought from Italy, after contracting many diverse ailments from constant sickness and the stormy weather I endured on the journey through Thrace and Macedonia (for I had left home already ill) the

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[16] L. T. Pearcy ("Theme, Dream, and Narrative: Reading the *Sacred Tales* of Aelius Aristides," *Transactions of the American Philological Association* 118 (1988): 379) analyzes the dynamics of Aristides' "sophisticated narrative self-consciousness." Quattrocelli ("Il pubblico dei *Discorsi Sacri* di Elio Aristide") reconstructs Aristides' possible contemporary audiences. Downie (*At the Limits of Art*, 171–81) discusses his aspirations to literary posterity.

> doctors were entirely at a loss—not only as to how to help me, but even to recognize what the whole thing was.

Once he has recalled the scenario, he goes on to describe his "diverse ailments," in more detail (*Or.* 48.6):

> But the most difficult and most intractable thing of all was the fact that I was blocked in my breathing. With much effort, and with no confidence at all, I was scarcely able to draw a forced and shallow breath. A constant constriction in my throat followed and continual shivering ensued, and there was need for more covering than I could bear. And in addition, other things troubled me, impossible to describe (*hetera amuthêta*).

Here, Aristides elaborates immediately on his mental and physical reactions to what appears to have been a respiratory crisis: feelings of blockage and constriction, his exertion and lack of confidence, and his sense that the coverings needed to warm his trembling body were somehow, at the same time, physically intolerable. Yet, this detailed description of his symptoms and his experience then trails off with a vague reference to "other things, impossible to describe." Even as he evokes the gaze—intent, but puzzled—of observing physicians ("entirely at a loss ... even to recognize what the whole thing was"), he creates a narrative frame that sets the whole sequence in the remote and hazy past.

In this second *Logos*, Aristides accounts for the temporal and stylistic disjunctures of his text in part by explaining that the published *Logoi* are a revision of the detailed diary record of symptoms, dreams, and treatments that the god commanded him to keep during his illness.[17] In other words, his retrospective narrative of divine providence is built from pre-existing rough materials, detailed and vivid descriptions of his illness experience that he either recorded and preserved, or recollected many years later. While he never does make clear his process of composition, or explain the sorts of materials that were at his disposal, Aristides appears to offer in the first *Logos* a sample of the kind of records he claims to have kept.[18] There, after declaring that he will tell the story of his abdomen, Aristides launches into a diary of symptoms, dreams, and cures covering a period of some two months in which he struggled with digestive disorders.

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[17] Aristides explains that Asclepius instructed him from the very beginning to keep a diary record (*apographê*) of his experience of illness (*Or.* 48.2), but claims he did not have all this material to hand when composing the *Hieroi Logoi* (*Or.* 48.3). Pearcy ("Theme, Dream, and Narrative," 381–83) regards this as a strategy calculated to enhance his claim to narrative authority.

The Diary of the first *Logos* makes it clear that the sense of distance and quasi-objectivity that characterizes the text is not merely a matter of distance in time, but a matter of authorial perspective. The Diary has, on the one hand, the air of an unmediated, subjective account—the bedside journal of the patient.[19] At the same time, however, it reveals Aristides as a careful observer of his own illness. For, while Aristides is not overtly concerned with diagnosis or prognosis in a medical sense, he is preoccupied with the task of observing and interpreting his physical symptoms. He adopts a perspective that seems deliberately to draw on the medical case histories of the Hippocratic tradition, particularly the Hippocratic *Epidemics*. A connection with the Hippocratic tradition is suggested by his terse, anecdotal style when he analyses the condition of his abdomen, "day by day" (*Or.* 47.5):

> It was the month of Poseidon—you know during what kind of a winter! [My] stomach was upset during those nights, and there was extraordinary insomnia, so that it was not possible to digest the smallest morsel. Not the least cause was the continuous succession of storms, which they said not a single roof tile withstood. And then, too, the sweat ceased that whole time, except when [I] bathed.[20]

This first entry is typical of the rest of the diary for its short periods, abrupt syntax, and the impersonal tone that Aristides adopts when chronicling his basic physical symptoms: the absence of first person verbs and personal pronouns is especially noteworthy. This tone of objective observation is reinforced when he connects his illness with seasonal storms, a gesture that recalls the kind of environmental determinism at work in the Hippocratic *Epidemics*. There, the "constitution" (*katastasis*) of a particular locale always precedes the presentation of the year's disease profile and the selection of personal case histories, reflecting a broader Greek understanding of a correlation between geography and the health of the local population.[21] Here, Aristides identifies the weather as a cause of illness, and to illustrate how unbearable his physical situation was, he observes the effects of the climate not just on his own body, but also on features of the man-made, inanimate environment—the roof tiles that "barely withstood" the winter storms.[22]

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[18] The status of the first *Logos* (*Or.* 47) has been questioned. T. Dorandi ("Il Diario dei Sogni di Elio Aristide: Per una interpretazione del primo *Discorso Sacro* (47 Keil)," *Segno e Testo* 3 (2005): 51–69) has proposed that this section was added by a continuator, perhaps a student of Aristides. Most scholars have, however, accepted *HL* 1 as an integral part of an uneven, evolving, composite text. See Downie, *At the Limits of Art*, 37–48, with discussion of Dorandi's views, and Nicosia ("L'ordine (para)logico dei *Discorsi Sacri* di Elio Aristide (*or.* 47–52)" in L. Pernot, G. Abbamonte and M. Lamagna, eds. *Aelius Aristide écrivain*. Brepols 2016), who explores the elements that link each book to the others.

[19] Behr (*Aelius Aristides and the Sacred Tales*, 97–100) dates the events of the Diary to January 4–February 15, 166 CE.

[20] Ἦν μὲν γὰρ Ποσιδεὼν μὴν, ἴστε οἵου χειμῶνος· ἔκαμνεν δὲ ὁ στόμαχος τὰς νύκτας καὶ ἀγρυπνίαι ἦσαν ὑπερφυεῖς, ὥστε οὐδὲ τὰ βραχύτατα πέττειν ἦν. αἰτία δ' οὐχ ἥκιστα ἡ συνέχεια τῶν χειμώνων, ἣν οὐδὲ κέραμος οὐδεὶς ἐνέγκαι ἐλέγετο· ἐπεὶ καὶ ὁ ἱδρὼς ἔστη πάντα τοῦτον τὸν χρόνον πλὴν ὅσα λουμένῳ.

As the first *Logos* proceeds, the Diary comes to be dominated by dream narratives, some of which contain medical detail, while others do not. Yet, these are consistently framed by a series of brief annotations of symptoms and treatment that, as in the passage above, echo the observation-based language and the telescopic "case-notes" of some of the texts in the Hippocratic tradition. Symptoms of abdominal disorder and a treatment regimen of purgation and abstention from baths are detailed according to a moderately standardized format: the day of the month is identified, a dream-narrative is presented, and a terse notation of therapeutic action follows: "no bathing (*alousia*), and vomiting with ease;" "On the seventeenth, no bathing as a result of a dream, and on the eighteenth no bathing" (*Or.* 47.9).[23] The anecdotal style echoes that of the case histories of the Hippocratic *Epidemics*, which detail the progress of fever in several individual patients. The case of one Silenus, in the first book of the *Epidemics*, provides an example of the style: "Eighth day: … A thin copious stool, as if undigested, was passed with difficulty following a small enema. The urine was passed with pain and was pungent; extremities became slightly warm, periods of light sleep … urine thin and clear."[24] The *Epidemics* mainly catalogue symptoms rather than treatments, and whereas the Hippocratic texts proceed according to the day of the illness, Aristides proceeds according to date. Still in a general sense, the *Epidemics* offer a precedent for Aristides' medical diary—both for their attention to environmental conditions and for their inclusion of unique—perhaps eccentric—individual cases.[25]

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[21] See for example *Epidemics* 3.2. Cf. *Airs, Waters, Places*. 12.40. This is one aspect of what G. E. R. Lloyd (*Magic, Reason, Experience* (Cambridge: Cambridge University Press, 1979), 109) describes as the "naturalistic attitude" characteristic of many Hippocratic writings.

[22] For a similar analogy between the body and objects in the world, see *On the Sacred Disease* 13.8, with comments by Lloyd, *Magic, Reason, Experience*, 23.

[23] The Diary comprises sections 5–57 of *Or.* 47.

[24] *Epidemics* 1.2.

The Hippocratic *Epidemics* were not, of course, the only model available to Aristides for the annotative, "case notes" of *HL* 1, and their influence may not have been direct. But the clinical style of this and other Hippocratic texts had a well-established place in medical discourse of the imperial world, as well as in Greek literary culture more broadly. 'Hippocrates' was recognized as a father of medical practice and thinking, and his texts were familiar to the educated elite of the empire—both from their literary training and from their engagement with the range of services on offer in the medical marketplace.[26] Aristides may well have been a reader of Hippocrates, and he was undoubtedly familiar with these texts as part of the library of Hellenism. Certainly, it is clear that he was familiar with 'Hippocrates' as a medical authority, and that he has Hippocratic medicine in mind in the *Hieroi Logoi*: he refers to Hippocrates by name when he describes one of the more elaborate prescriptions delivered to him in a dream by Asclepius.[27] In this sense, the importance of the Hippocratic legacy in the *Hieroi Logoi* runs deeper than a likely influence on its rhetorical style: in the Diary of *HL* 1, and throughout the text, Aristides adopts the physician's perspective on the patient and his illness. The Hippocratic *Epidemics*, and the Hippocratic tradition in general, offer a point of reference for Aristides as he set himself up as the observer of his own body.

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[25] J. Wee ("Case History as Minority Report in the Hippocratic Epidemics," in *Homo Patiens: Approaches to the Patient in the Ancient World*, ed. G. Petridou and C. Thumiger, Leiden: Brill, 2016, 138–65) argues that the case histories of the epidemics were included as records of exceptional cases that departed from the general, local patterns described in the "Constitutions" portions of the text.

[26] The second century physician Galen wrote extensive commentaries on the Hippocratic *Epidemics* and emulated the case history approach (though not the terse style) in some of his own writings. The first century physician Rufus of Ephesus appears to have imitated not only the case history approach, but also the journalistic format, following the Hippocratic model quite closely. See H. King, "The Origins of Medicine in the Second Century AD," in *Rethinking Revolutions Through Ancient Greece*, ed. S. Goldhill and R. Osborne (Cambridge: Cambridge University Press, 2006), 246–63; S. Mattern, *Galen and the Rhetoric of Healing* (Baltimore: Johns Hopkins University Press, 2008), 33–35 and 40–43; M. Ullman, *Rufus von Ephesos: Krankenjournale* (Wiesbaden: Harrassowitz, 1978), 15–25. I. Israelowich (*Patients and Healers in the High Roman Empire*, Baltimore: Johns Hopkins University Press, 2015, 69) describes elite imperial-era patients as knowledgeable consumers of both temple medicine and Hippocratic medicine. Georgia Petridou ("Aelius Aristides as Informed Patient and Physician" in *Homo Patiens: Approaches to the Patient in the Ancient World*, Leiden: Brill, 2016, 451–70.) considers Aristides as an interlocutor in the medical conversation.

[27] At *Or*. 51.50 Aristides describes a dream in which two physicians invoke "Hippocrates" as an authority on the medical value of cold baths. Further discussion in Downie, *At the Limits of Art*, 99–102.

3 Pain as an Observable Symptom

It is a striking feature of Aristides' Diary in the first *Logos* that descriptions of pain are nearly absent from his "case-notes." He mentions physical difficulties (abdominal distress, nausea, sores), various treatments (fasting, vomiting, abstention from baths), and dreams, some of which involve painful or violent scenarios.[28] However, he does not use the vocabulary of pain, nor does he describe any scenario or procedure, whether real or imaginary, as a painful experience in subjective terms. When he does record painful scenarios, he tends to adopt the position of an outside observer, stepping into the role of the physician in the Hippocratic tradition, and treating pain as an observable symptom.

Aristides makes only two brief references to pain in the first *Logos*, at the beginning of the Diary and again at its close, using the vocabulary of *algos* and *odunê*. In both cases, he uses pain as a diagnostic tool. At its first appearance, it is crucial for understanding the therapeutic message of one of Aristides' dreams (*Or.* 47.8):

> And the vision of the dream went something like this: that I was in the warm waters, and bending forwards I saw that the lower parts of my intestine were in a disordered state (*atopôteron diakeimena*). *I* thought it was a good idea, therefore, to continue to abstain from bathing. But someone [else] said that the evident difficulty was not on account of the bath per se, and it was not reasonable to guard against it as the cause. So I washed towards evening, and when dawn came I had abdominal pain (*êlgoun*), and the pain (*algêma*) extended on the right all the way down to my groin.

In this account of his dream, Aristides describes his intestines as "disordered" (*atopôteron diakeimena*)—registering, it would seem, an external, visual impression of his body, as if observing it from some distance. He goes on to reason about the appropriate treatment, based on the indications of the dream:

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[28] Aristides interprets several dreams of violent confrontation as having medical meaning: he is attacked by men with daggers (*Or.* 47.22); attacked by a bull (*Or.* 47.13); attacked by Parthians (*Or.* 47.9); he undergoes therapeutic blood-letting (*Or.* 47.28).

to abstain from bathing makes sense, under conditions of abdominal distress. When someone else disagrees, Aristides tests his interpretation by bathing: the pain that ensues seems to match the gastric distress signaled by his disordered intestines in the dream, confirming Aristides' original understanding.[29] In this passage, then, the visual impression of disorder and the sensory experience of pain both offer data for interpretation. Aristides correlates the two, and as he tracks the progress of the pain through his body—extending on the right, to his groin—he maintains the perspective of an observing physician at the end of the passage.

At the end of the Diary, it is the absence of pain that is medically significant. When Aristides reports his most recent dreams to the physician attending him, the physician, he says, "yielded to the god," accepting whatever treatment was prescribed in the divine vision. The result: "the night was wholly endurable (*euphoros*) and entirely without pain (*panta anôduna*)" (*Or.* 47.57). Here, lack of pain (*anôduna*)—which, again, is not described in any experiential detail—functions as a positive symptom, confirming that Aristides and his doctor have correctly understood the god's cryptic communication regarding the state of his body and its needs. In these two moments that frame the Diary, it is the fact of pain that Aristides records, not its quality, intensity, or the nature of the experience. Furthermore, he offers nothing in this account that might be transferable to another person's experience, or even comprehensible in any meaningful way to an outsider—pain merely confirms Aristides' reading of his own body—demonstrating to his audience that his interpretation was correct.

Beyond the Diary of the first *Logos*, pain appears at several points in the text as a sign and a symptom of illness in crises that are described from the perspective of an outside observer. In the following passage, Aristides uses the language of the "symptom" when he describes a physical crisis that includes a "fiery pain" (*Or.* 48.56–58):

> In addition to this, there were various symptoms (*symptômata*) in my teeth and ears, and there was a tension everywhere in my arteries, an inability to retain any nourishment, yet even so an inability to vomit. For whatever small morsel might touch my throat or palate closed the passage, and then it was impossible to retrieve it. There was the fiery pain (*odunê … diapuros*), which penetrated to my brain, and all kinds of

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[29] Further discussion in J. Downie, "Proper Pleasures: Bathing and Oratory in Aelius Aristides' *Hieroi Logoi*," in *Aelius Aristides between Greece, Rome, and the Gods*, ed. W. V. Harris and B. Holmes, Columbia Studies in the Classical Tradition 33 (Leiden: Brill, 2008), 119–23.

> attacks, and the impossibility of reclining at night—I had to raise myself and persevere, bent forward, with my head on my knees.

He offers a striking description of a physical crisis, but it is the accumulation of detail that makes the passage powerful, rather than any particular stress on the personal perspective. The narrative framework is, of course, first-person. Yet, Aristides does not press this point. Indeed, in these lines his language is predominantly impersonal: the only clear first-person verb is the parenthetical "I believe" (*oimai*). Although he names his pain (*odunê*), he makes little attempt to communicate the internal experience of suffering to an external audience: the adjective "fiery" seems a conventional metaphor, almost a clinical shorthand—of the sort that Galen might appreciate, as we shall see. Aristides is present in the text primarily as the observer of his own symptoms. Indeed, he draws attention to this detached perspective at the end of the episode, when, in a characteristic moment of narrative self-consciousness, he points out that any account (*diêgêsis*) is bound to be distant from the experience itself, incommensurate with the actual events.[30]

By adopting the position of the observer when presenting his own pain, Aristides claims the place occupied by the physician in the Hippocratic tradition of medicine. For, typically, in Hippocratic texts such as the *Epidemics*, the physician stands apart from the patient, observing and assessing symptoms to create a case history of the progress of the disease. In this clinical context, pain is described from an objective perspective, as a diagnostic tool. It is reported frequently as a symptom, most often using the vocabulary of *odunê* and its cognates.[31] These terms may be qualified by adjectives, or enhanced by a range of comparisons, but they are usually brief.[32] Moreover, it is rare to find passages in which we can hear the voice of a distinct patient within the text, or behind it, describing the painful experience in his or her own words.[33] Instead, pain is filtered through the lens of the physician-writer, who touches the patient's body and watches for a reaction, or asks questions about present and past pain—either of the patient or of his or her caregivers—designed to further a specific diagnostic scheme.[34]

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[30] *Or.* 48.58: "'What mortal man might tell all these things?' 'For neither five nor six years' are sufficient, but the narration perhaps needs no less time than that in which the events took place."

[31] According to Villard ("Vocabulaire et représentation de la douleur," Par. 1) only *odunê* and its cognates refer specifically to physical pain. The other two words for pain that are common in the Hippocratic corpus have a wider range: *algêma* can refer to a malady without pain; *ponos* can refer to laborious effort as well as pain (*Ibid.*, Par. 4–6).

[32] *Ibid.*, Par. 25–28. J. Jouanna ("La maladie comme agression dans la *Collection hippocratique* et tragédie grecque: la maladie sauvage et dévorante," in *La Maladie et les maladies dans la Collection hippocratique*, ed. P. Potter, G. Maloney, and J. Desautels (Québec: Éditions du Sphinx, 1990), 39–60) shows that metaphorical language—particularly of animal attack—does appear in the Hippocratic corpus, especially in the gynecological treatises, which may reflect folk views and treatments.

As an observer, the physician has access to the patient's body through all his own senses, but little access to the body's interior. Paradoxically, this is frequently the perspective Aristides himself adopts. Certainly, there are moments when he incorporates his perspective as patient into the text—here, the "fiery" pain would be inaccessible to a physician unless it were described by the patient. In general, however, his descriptions of medical crises read like a physician's case history, registering the patient's report of pain, but with little attempt at qualitative description, and maintaining an overall focus on movements of the body that are outwardly observable.

4 The Language of Pain in the Medical Tradition

While Aristides acknowledges the problem of describing pain, he avoids the most acute difficulties in this regard by standing outside of his own body to observe it. In this sense, Aristides' account is out of step with much of the literary tradition, where the representation and description of pain generally brings into view the subjective, emotional dimensions of a person or character's experience. Indeed, in the literary context, physical pain itself is rarely the focus. Rather, it provides a way to make emotional and moral trauma visible: pain externalizes psychological states, whether through the physical and verbal performance of illness by figures on stage, or through characters' description of their psychological struggles in physical terms.[35] Representations of illness and pain in tragedy, for example, frequently have a symbolic function, working as visual manifestations of the central problems of the drama.[36] In this sense, pain itself functions primarily as a metaphor in the ancient literary context: with an embodied understanding of emotion, illness and pain are an aid and a provocation to the audience in interpreting the full spectrum of human psychic experience.[37]

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[33] Villard ("Vocabulaire et représentation de la douleur") offers some examples of points where the text seems to reflect "l'intervention de la malade, seule capable de préciser la nature de sa douleur et d'en faire l'historique" (section 9). Still in these cases, the text records the fact, rather than the nature, of pain. For example, in the Hippocratic *Nature of Women* (48), one sign that the urterus has turned towards the head is that "the patient says that the vessels in her nose and under her eyes hurt (*algein*)."

[34] "Si les paroles du malade disant sa souffrance sont plus rarement rapportées, elles sont bien sûr toujours à la base de la connaissance du médecin, du moins tant que le patient est en état de s'exprimer" (Villard, "Vocabulaire et représentation de la douleur," Par. 11).

[35] Heracles, for example, as he burns on the pyre describes himself as burnt by a spasm of *atê* which shoots through his body, like "a terrible disease eating through me," (R. Padel, *In and Out of the Mind* (Princeton: Princeton University Press, 1992, 33–36 and 132–34).

Aristides' relatively detached perspective on his own pain in the *Hieroi Logoi* sets this work apart from much of the literary tradition and closer, as we have seen, to the technical writing of Greek medicine. From the classical period forward, ancient physicians recognized pain, and the challenge of communicating about pain, as a central issue in the medical encounter. From the beginning of the learned tradition as we find it in the Hippocratic treatises, pain is regarded both as a problem in its own right—a suffering the physician sets out to relieve—and also as one of an array of signs and symptoms that may render illness legible.[38] Talking with the patient about his or her experience of pain could, in theory, allow the physician to get beyond the information available externally to his own senses. Yet, as medical writers recognized, such access to the interior of the body and to the subjective experience of the patient depended upon effective communication between patient and physician. From extant medical writings, it appears that when physicians looked to pain as a diagnostic tool, they were less interested in its qualitative description—the sorts of descriptions that might serve metaphorical purposes in the literary context—and more interested in its quantity, location and movement through the body. Assessing the relatively simple language of pain in the Hippocratic texts, Rey suggests that "[i]t is precisely in this way that medical language attempted to master pain—by separating it from its powerful emotional charge."[39]

Both classical and imperial-era medical writers highlight the difference between subjective and objective viewpoints. The author of the Hippocratic *On*

Horden ("Pain in Hippocratic Medicine," 303) describes ancient literature outside the medical corpus as containing "a rich semantic world of pain—a world in which … physiology is inseparable from ethics, and somatic and psychological pain and distress lie on a continuum rather than either side of a conceptual chasm."

[36] See Budelmann, "Körper und Geist in tragischen Schmerz-Szenen," in Bernd Seidensticker and Martin Vöhler, eds., *Gewalt und Ästhetik: zur Gewalt und ihrer Darstellung in der griechischen Klassik*, Berlin/New York 2006, 123–48, esp. 143.

[37] Budelmann ("Körper und Geist," 146–47) points out that representations of pain may also serve in some cases as a reminder of irreducible materiality. In this sense, they may also require the audience to face the limits of interpretation and the limits of language.

[38] Villard, "Vocabulaire et représentation de la douleur," Par. 1.

[39] Rey, *The History of Pain*, 17.

the Art, for example, asserts that since the patient cannot understand his or her condition, he or she can make no contribution to the diagnostic process—perhaps not even when it comes to reporting pain, which, he writes, a patient may magnify or distort from lack of knowledge or from fear.[40] On the other hand, the first century CE physician Rufus of Ephesus promotes open-ended conversation with patients as productive. In his treatise on the place of doctor-patient conversation in the therapeutic encounter, Rufus devotes three sections to the topic of pain.[41] Here he proposes that it is precisely by questioning the patient that the doctor can get past conventional displays and expressions of pain, both physical and verbal—which, he suggests, may initially be culturally-conditioned and over-dramatized. In Rufus' view, patients can, with guidance, make a positive contribution to the diagnostic process.

Like the Hippocratic author of *On the Art*—and unlike his imperial predecessor Rufus—Galen is extremely cautious about the value of patients' descriptions of their own pain.[42] In his primary clinical treatise, *On the Affected Parts*, he acknowledges that when a doctor cannot learn everything from external symptoms, information about internal pain may help. For Galen, however, the gap in communication between patient and physician is profound: only the patient has access to the experience of pain; but only a doctor can make sense of that pain as a symptom by interpreting it in the context of his understanding of the body system as a whole. As Melinda Letts argues, Galen has a fundamentally hierarchical conception of knowledge in the medical encounter. Since he values the physician's expertise above the patient's account of personal experience, he accepts only those lines of patient-questioning that are consistent with his logical method and appear to serve the goals of the physician's art.[43] This means that Galen is pessimistic about gleaning useful knowledge from the patient's description of his or her pain, since it is difficult for the physician to establish a stable, systematic relationship between subjective experience and objective analysis. He explores the limits of this sort of diagnostic exchange in *On the Affected Parts*, where he embarks on an extended critique of an attempt by his near-contemporary, the Syrian-born physician Archigenes, to address this question.

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[40] *On the Art* 7: "They [patients] do not know what they are suffering from, nor why they are suffering from it, nor what will succeed their present symptoms. Nor have they experience of the course of similar cases. Their present pains are increased by fears for the future. They are full of disease and starved of nourishment; they prefer an immediate alleviation of pain to a remedy that will return them to health."

[41] Rufus of Ephesus, *Medical Questions* 41–43, in C. Daremberg, ed., *Oeuvres de Rufus* d'Éphèse (Amsterdam: Adolf M. Hakkert, 1963). M. Letts ("Rufus of Ephesus and the Patient's Perspective in Medicine," *British Journal for the History of Philosophy* 22 (2014): 996–1020, DOI: 10.1080/09608788.2014.963504) shows that Rufus approaches pain as a "subjective phenomenon" (20) and describes this as a "person-centered" approach to questioning, contrasting it with a traditional Hippocratic perspective in which the disease occupies a central position. See also M. Letts ("Questioning the Patient, Questioning Hippocrates: Rufus of Ephesus and the Pursuit of Knowledge," in *Homo Patiens: Approaches to the Patient in the Ancient World*, ed. G. Petridou and C. Thumiger, Leiden: Brill, 2016, 81–103).

[42] Letts, "Questioning the Patient," 91 contrasts Rufus' insistence on the value and necessity of dialogue with patients with Galen, whose notion of questioning patients is—as in the Hippocratic tradition generally—extremely limited.

In the second Book of *On the Affected Parts*, devoted to a discussion of diagnostic symptoms, especially pain, Galen refutes Archigenes' claim that it is possible to distinguish what parts of the body had been affected by illness "by the difference of pains" (2.2.1), and that these differences could be communicated by an elaborate verbal taxonomy.[44] According to Galen, Archigenes had set about devising a descriptive language for the qualities of various pains—apparently with the goal of turning patient reports of pain into material precise enough to be useful to physicians in diagnosis and treatment. In his refutation, Galen quotes substantial sections from Archigenes' treatise, including a passage in which his colleague discusses pains associated with the liver, spleen, kidneys, bladder, and uterus. Of pains in the liver, for example, Archigenes wrote that they are "drawing (*holkimos*), clinging (*empefykôs*) and dull (*narkôdês*), and stubbornly persistent."[45] Galen takes issue with the adjective "drawing" (*holkimos*): "the term *holkimos* is uncommon in Greek. Therefore, it is not easy to find out what it means. For only from frequent use can we discern the meanings [of words]."[46]

For Galen, "common" or "customary" (*synêthôn*) language is crucial (2.9.12; 8.116K):

> A great many physicians before Archigenes who wrote about the differences of pains did not dare to use language other than the customary

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[43] Letts, "Questioning the Patient," 89 and 93.

[44] I cite Galen's text from Gärtner, 2015. *Galen: Über das Erkennen Erkrankter Körperteile I–II.* Corpus Medicorum Graecorum v 6.1.1. 2 Volumes. Berlin: De Gruyter. I have also consulted the translation of R. E. Siegel, *Galen on the Affected Parts* (Basel: Karger, 1976).

[45] 2.9.1; 8.110K: ὁ δὲ τοῦ ἥπατος ὅλκιμος, ἐμπεφυκὼς καὶ ναρκώδης ἐστὶ καὶ ἀτειρέστερον ἐγκείμενος. This lengthy quotation ends, in fact, with Archigenes reflecting that the assortment of pains affecting the uterus "makes for lack of precision" (καὶ ἀπορίαν τοῦ ἰδιώματος ἐμποιεῖ).

[46] 2.9.2; 8.111K: ἔστι μὲν οὖν ἄηθες τοὔνομα τοῖς Ἕλλησιν τὸ ὅλκιμον, ὥστ' οὐδὲ τί σημαίνει ῥᾴδιον εὑρεῖν· ἐκ γὰρ πολλῆς χρήσεως ἡ τῶν σημαινομένων εὕρεσις γίνεται.

> (*synêthôn*) expressions, which it is possible to hear from the patients themselves. For indeed, they sometimes say they feel pain such that they think they are being pierced by a needle, and then sometimes as if they were being perforated by a trepan, crushed, torn apart, stretched or pulled up or down, or sometimes they seem to have the feeling of an oppressive weight, either the feeling of it hanging over the upper parts, or at other times lying in the surrounding parts.

For Galen, this language is "customary," and therefore acceptable, partly because the same descriptions and comparisons, in his experience, occur frequently—unlike "drawing" (*holkimos*) and "dull" (*narkôdês*). Partly, too, he approves of them because they respect the categories of sensory experience in a way that more metaphorical expressions do not. Patients may, Galen concedes, compare their experience of pain to other physical experiences that pertain to the sense of touch. Feelings of crushing, tearing, weight and the sensation of being pierced by some object are metaphorical descriptions, but they do not violate category-boundaries by borrowing from other realms of experience, such as taste or hearing. What is unacceptable, in Galen's view, is any language that conflates categories that should be regarded as distinct.[47] So, for example, it is incorrect to speak of a "sweet" or "soft" pain, because pain is by definition a negative experience.[48]

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[47] 2.9.11–12; 8.115–16K: "… we have specific expressions for all tactile qualities, for those of taste and likewise for those of vision and hearing. We should employ all these terms according to Hellenic custom and not speak of an astringent (*styphonta*) and harsh (*austeros*) pain, since these expressions are specific to humors." In his treatise *On the Differentiae of Symptoms* Galen describes pain as a "specific and singular" symptom that is particular to the sense of touch (III.2; 7.57K), and that is peculiarly "internal." Pain may come through the other senses (such as hearing, for example) from external perceptions, but it primarily comes "from conditions within the body itself," and for Galen these belong to the sphere of touch. The pain of an earache, for example, belongs not to the sense of hearing, but to the sense of touch. Roby, "Galen on the Patient's Role in Pain Diagnosis: Sensation, Consensus, and Metaphor," in *Homo Patiens: Approaches to the Patient in the Ancient World*, ed. Thumiger and Petridou (Leiden: Brill, 2016), 304–24, discusses Galen's attempt to develop a proper, literal (*kyrios*) terminology for pains that would be useful in the diagnostic context.

[48] 2.6.2;8.88K: "One also cannot understand the expression 'sweet' (*glukun*) pain, since pain always troubles the affected person, whereas all sweet sensations are pleasurable (*hêdeôn*)."

Galen's insistence on plain language, consistent with contemporary usage, is in line with his views on language more generally.[49] In a period when many of his highly-educated peers relished the literary affectation of classicizing, Attic Greek, Galen advocated a plain style that would fulfill the primary, communicative functions of language. His further insistence that metaphors and comparisons be restricted to specific, appropriate categories of sensory experience reflects the priority he placed on logical process: for language to function productively in the clinical context it should frame the patient's experience in terms appropriate to the physician's reasoned account. Galen is well aware of how difficult this is: ultimately, it would require the physician himself to experience every pain and then bring his professional expertise to bear in devising a language that he could offer to other sufferers.[50] Since no individual's experience will be so broad, conventional language is the next best thing, because it is backed by the personal experience of some doctors in some cases (Galen himself has personal experience of some pains), and in other cases it is supported by broad consensus among patients.

Like his Hippocratic predecessors and his imperial contemporaries, Galen was concerned with the challenge of understanding patient pain. However, while physicians like Rufus and Archigenes explored possibilities for expanding the patient-physician conversation in this domain, Galen is inclined to restrict that conversation in the diagnostic encounter. The patient's subjective experience is helpful in the diagnostic process only if it can be fitted into the conceptual structures of an objective, physical understanding of disease. Galen objects to devising a poetics of pain in the clinical context, it seems, because he is pessimistic about the possibility of transforming the patient's subjective experience into data that can contribute to an objective, rational account.

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[49] "Galen's linguistics was … always practical," writes R. Rosen, "Philology and the Rhetoric of Catastrophe in Galen's *De indolentia*," in *Galen's* De indolentia: *Essays on a Newly Discovered Letter*, ed. C. K. Rothschild and T. W. Thompson (Tübingen: Mohr Siebeck, 2014), 170. He viewed language as a social tool and any failure of language as "a failure of *philanthropia*," as observed in the discussion of Galen's preference for literal over metaphorical language in his scientific work by H. von Staden, "Science as Text, Science as History: Galen on Metaphor," in *Ancient Medicine in its Socio-Cultural Context*, 2 Volumes, ed. Ph. J. van der Eijk, H. F. J Horstmanshoff, and P. H. Schrijvers (Amsterdam: Rodopi, 1995), 2.500. Cf. B. Morrison, "Language," in *The Cambridge Companion to Galen*, ed. R. J. Hankinson (Cambridge: Cambridge University Press, 2008), 116–56.

[50] Galen points out that Archigenes had no access to diseases of the womb, and was therefore unqualified to offer elaborate descriptions of its pains. In the same section of the treatise he recounts an example of his own experience of pain—a rare case of the ideal diagnostic scenario (2.7.1; 8.89K): "Consequently a person who wants to describe each type of pain should have experienced it personally, should also be a physician and able to express it to others, and should have observed himself with understanding while suffering, and with his mental powers intact."

5 Describing the Experience of Pain in the *Hieroi Logoi*

Galen's pragmatic perspective on the language of pain, including his rejection of Archigenes' attempt to create a more elaborate poetics of pain, provides some context for Aristides' descriptions of physical crises in the *Hieroi Logoi*, beyond the Diary of the first *Logos*: declining to describe his pain in subjective terms is one way in which Aristides claims the status of observer or doctor. The narrative voice is first-person, and the account is personal; yet, Aristides frequently adopts the external point of view of the attending physician. This double perspective of patient and physician is built into the structure of Aristides' account, and for this reason his descriptions of painful episodes seem at once vivid and detached. He sometimes offers a glimpse of his own sensations, but regularly combines this with a more objective, clinical perspective of the sort favored by Galen and the Hippocratic writers before him when they treat pain as a symptom of disease. Two episodes of extreme pain, from the second and third *Logoi*, vividly illustrate this variable perspective.

Aristides' vacillation between subjective and objective perspectives is on display when he describes a seizure in the third *Logos*. As the anecdote begins, Aristides is the central focus (*Or.* 49.16–17):

> I was reclining at lunch, and strong and terrible pains came upon my head, and there was a tension in the muscles of my face, and my lips were locked together, and I was in great difficulty. Constricted as I was, I rushed into my bedroom and lay down somehow, and a great and strong fever arose.[51]

Aristides is the grammatical subject of many of the key verbs in this narrative: he reclines, feels constricted, rushes to lie down. But the illness also has a life of its own: "pains" (*algêmata*) assail his head, and a fever (*pur*) rises. In the account that follows, his body becomes the focus, and the contortions of his flailing limbs are described from the perspective of an outside observer:

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[51] κατεκείμην ἐπ’ ἀρίστῳ, καὶ ἐπῆλθε τῆς κεφαλῆς ἀλγήματα ἰσχυρὰ καὶ δεινά, καὶ τὸ πρόσωπον κατετείνετο, καὶ τὰ χείλη συνεκέκλειτο, καὶ ἦν ἀπορία πολλή. συσπειραθεὶς δὲ ὡς εἶχον εἰσῆξα εἰς τὸ δωμάτιον οὗ κάθευδον, καὶ κατακλίνομαι ὅντινα δὴ τρόπον, καὶ πῦρ ἐπιγίγνεται πολὺ καὶ σφοδρόν·

> the body was wrenched about every which way, and the knees were carried up and dashed against the head, and it was impossible to restrain the hands—they fell upon throat and face. And the chest was thrust out and the back was stretched back in reverse toward the rear like a mast bent in the wind. And no part of the body was unmoved, nor was this some small change from its natural condition, but the movement was extreme and the extent of the pain unspeakable, not allowing silence but resulting all the more in screams.[52]

From a narrative point of view, the perspective that Aristides adopts here is the perspective of the observer or physician, who can compare the body in crisis to what should be its "natural condition," and who can evoke the strained mast of a ship as a visual image for its contortion. The pain itself is described in terms of its extension in space (*katatasis*), and Aristides' subjective experience, in terms of its outward manifestation: inarticulate screams.

In another passage, from his account of the initial onset of his illness during a sojourn to Rome twenty years earlier, Aristides describes how fever and shortness of breath develop into a crisis that takes over his whole body. Here again, Aristides' body is the center of attention—his swollen intestines, chilled nerves, constant shivering, and constricted breathing—but the narrative alternates between subjective and objective points of view. (*Or.* 48.63):

> The doctors produced purges, and I was purged for two days by drinking elaterium, until finally there was a bloody discharge. And fevers attacked me, and everything was despaired of, and there was not any hope even for my survival. And finally the doctors made an incision, beginning from my chest all the way down to the bladder. And when the cupping instruments were applied, my breathing was completely stopped, and a pain, numbing (*narkôdês*) and impossible to bear, passed through (*diêlthen*) and everything was smeared with blood, and I was violently purged.

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[52] εἵλκετο πάσας ἕλξεις τὸ σῶμα, καὶ τὰ μὲν γόνατα ἄνω πρὸς τὴν κεφαλὴν ἐφέρετο, καὶ προσερρήγνυτο, τὰς δὲ χεῖρας οὐχ οἷόν τ' ἦν κατέχειν, ἀλλ' εἰς τὸν τράχηλον καὶ τὸ πρόσωπον ἐνέπιπτον· τὸ δὲ στῆθος ἔξω προεωθεῖτο καὶ τὸ νῶτον εἰς τοὔπισθεν ἀντεσπᾶτο ὥσπερ ἱστίον ἐξ ἀνέμου κεκυρτωκός. ἠρέμει δὲ οὐδὲν τοῦ σώματος οὐδὲ μικρόν τι παρήλλαττε τοῦ κατὰ φύσιν, ἀλλ' ἦν ἐπὶ πλεῖστον ἡ κίνησις καὶ ἡ τῶν ὀδυνῶν κατάτασις ἄρρητος, οὔτε σιωπᾶν ἐῶσα καὶ πρὸς τὴν φωνὴν ἔτι μεῖζον ἀπαντῶσα.

> And I felt (*aisthanomên*) as if my intestines were cold and hanging out, and the difficulty in my respiration was intensified.

Many details of this treatment narrative are related in a straightforward, clinical fashion: the purgation-by-drug regime sounds routine at first; its failure is registered impersonally—"everything was despaired of"; and the narrative voice remains detached as Aristides describes the doctors' second, surgical attempt—until the pain hits, "numbing and impossible to bear." Here, finally, we have a moment of pure subjectivity—and a rare instance of metaphor, as Aristides uses one of Archigenes' adjectives for pain of which Galen disapproved (*narkôdês*).[53] Yet, this is also a moment of alienation: Aristides draws attention to his awareness (*aisthanomên*) of his own body and compares it to feeling as though his body has been turned inside out.[54]

Aristides records a similar episode of divided consciousness in his account of the Antonine plague, an epidemic illness that swept Asia Minor in the 160's (*Or.* 48.38–45).[55] As he describes the devastating effects on the population at Smyrna, he adopts not only the perspective, but also the persona, of the physician, alluding, it would seem, to Thucydides' account of the fifth century plague at Athens: the plague struck down even those who attempted to care for the sick, Aristides writes—and he includes himself in this category of helpers. As the illness took hold, he says, "I persisted in my concern for the safety of others, no less than for my own. Then, the disease increased and I was attacked by the terrible burning of a bilious mixture." His dual role—as caregiver and sufferer—establishes a context for the final scene of what turned out to be a near-fatal illness experience. Even as the doctors despair of Aristides' life, he retains all his mental capacities: "Thus I was conscious of myself as if I were another person, and I perceived my body ever slipping away, until I was near death."[56]

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[53] Apart from the passage cited above, Galen discusses the term "narkôdês" at length at the beginning of the second book of *On the Affected Parts* (2.2). His argument there is that it is not appropriate to describe parts of the body as "dull" or "numb," as Archigenes does. Galen explains "numbness" as an effect produced by cold transmitted through the nerves to any number of areas of the body—which means that it cannot help in connecting illness to particular organs. See Gärtner 2016, Vol. 2, pp. 677–696 and 782. In fact, Aristides' use of the word is perfectly consistent with Galen's understanding, as he has just described the onset of the illness as involving swelling in his internal organs and chilled nerves (τὰ νεῦρα κατέψυκτο, *Or.* 48.63).

[54] καὶ τῶν σπλάγχνων ᾐσθανόμην οἷον ψυχρῶν τε καὶ ἐκκρεμαμένων, καὶ τὸ τῆς ἀμηχανίας τῆς περὶ τὴν ἀναπνοὴν ἐπετάθη.

[55] On the plague, see J. F. Gilliam, "The Plague under Marcus Aurelius," *AJP* 82 (1961) 225–61.

This evocation of divided consciousness at the very boundary between life and death is consistent with the perspective Aristides adopts throughout the text in descriptions of his medical crises: his physical body has its own presence in the narrative, and Aristides frequently adopts the perspective of the outside observer. At every turn, Aristides reminds us that he is not merely a patient, but also an observer of his own condition.

6 Conclusion

Helen King has described Aristides as a "professional patient"—a phrase intended, it seems, to capture both Aristides' assiduous interest in his own health and the agenda of self-presentation that drives his account in the *Hieroi Logoi*. The phrase might also, I propose, convey a sense of Aristides' awareness of one of the key problems in clinical medicine: making sense of pain. Aristides' most arresting descriptions of pain are remarkable for the way he combines the perspectives of patient and observer. At moments of physical crisis in which we might expect him to describe the experience of pain exclusively from the inside, he instead moves between subjective and objective perspectives, between the personal and the clinical. Many aspects of his text show that Aristides was familiar with the Hippocratic medical tradition, and that he draws on this tradition deliberately in his *Hieroi Logoi*. His treatment of pain shows that he was, more specifically, aware of the problem of the communicability of pain and its use in diagnosis and treatment, which, as we have seen, was a topic of conversation in medical circles of his time.

For this reason, it is helpful to set Aristides' first-person account next to Galen's reflections on the challenge of describing, understanding, and using pain in the clinical context. In *On the Affected Parts*, Galen accepts that questioning patients about their experience of pain may help the physician understand the internal workings of the body, if the patient can use common expressions or describe the process of pain in the body fairly literally. On the whole, however, he is relatively pessimistic about the diagnostic potential of these sorts of conversations. Language, properly deployed, might occasionally help to bridge the gap between the patient's subjective account of experience and the physician's reasoning observation, but this depends upon a rare and perfectly judicious combination of reason and experience. Like Galen, Aristides registers the possibility that pain may be fundamentally incommunicable—he frequently describes his pain as "unspeakable," *amuthetos.* When he does put his physical suffering on view, however, Aristides engineers the complementarity of subjective and objective perspectives that Galen can achieve only rarely in the clinical realm.

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[56] *Or.* 48.39: οὕτω παρηκολούθουν ἐμαυτῷ, ὥσπερ ἂν ἄλλῳ τινὶ, καὶ ᾐσθανόμην ὑπολείποντος ἀεὶ τοῦ σώματος, ἕως εἰς τοὔσχατον ἦλθον.

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CHAPTER 9

Concepts of the Female Body in Mesopotamian Gynecological Texts

Ulrike Steinert

This chapter investigates metaphors and concepts associated with the female reproductive body in gynecological texts from 2nd and 1st millennium BCE Mesopotamia, focusing on ideas about anatomy and the physiology of sexual reproduction marked by conception, gestation and birth. The investigation reveals that Mesopotamian texts employ a systematic set of interrelated metaphors, some of which are very common cross-culturally and are grounded in basic conceptual metaphors, such as THE BODY IS A CONTAINER. The various metaphors reveal the existence of different models of reproductive processes, each of which serves to capture a different aspect of bodily and cultural experience. As a major insight, the survey demonstrates that the female body is represented as a productive body, and that reproduction is seen as analogous to craft production and to processes in agriculture and animal husbandry (including water management and irrigation). Thus, in Mesopotamian medicine, the female body, as well as its fertility and physiology, are interpreted and regulated according to experiences and practices of the human-environment interaction, employing a model of the body that can be termed "the body technologic."

1 Introduction

Within the corpus of Mesopotamian medical texts extant on hundreds of clay tablets, there are about 80 largely unpublished tablets and fragments known to date, which are devoted exclusively to women's health problems.[1] Gynecological

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material (like the rest of the Mesopotamian medical corpus) is preserved in the genres of diagnostic and therapeutic texts, with the latter consisting of medical recipes (including tests for pregnancy prognosis) and incantations (with attached ritual instructions). The majority of preserved diagnostic and therapeutic texts date to the 1st millennium BCE, with fewer from the 2nd and 3rd millennium BCE. In addition, there are commentaries on selected diagnostic and therapeutic texts that stem exclusively from the 1st millennium BCE.[2]

As is well known, Mesopotamian medical texts in cuneiform script are mostly written in Akkadian, but numerous incantations were also composed in Sumerian or in even less well-known languages of the Ancient Near East (e.g., Elamite, Hurrian). They were found at different cities of the Mesopotamian heartland, i.e., in Babylonia (e.g., in Babylon, Sippar, Nippur, Uruk) and in Assyria (Nineveh, Assur, Sultantepe), in addition to a smaller number of texts from the periphery of Mesopotamia (e.g., from Ugarit at the Levantine coast from the Hittite capital Hattuša).

As a starting point, it is essential to highlight a few fundamental characteristics of the Mesopotamian medical system and literature. Mesopotamian medicine can be described as a holistic system of healing and healthcare embracing several related aspects and strategies to health, including drug-based treatments combined with strong religious, ritual and ethic components and concerns for diet and hygiene. It was a system with a complex outlook on health and illness, taking into consideration the patient, his/her body and situation,

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[2] Furthermore, several entries referring to treatments for the womb and specific female conditions are included in list compendia on *materia medica.* For translations of selected texts of the gynecological corpus and an overview of the topics dealt with in Mesopotamian women's healthcare, see e.g. B. Böck, "Kontrazeption, Konzeption, Geburt, Frauenkrankheiten," in *Texte zur Heilkunde*, Texte aus der Umwelt des Alten Textaments, Neue Folge Band 5, ed. B. Janowski and D. Schwemer (Gütersloh: Gütersloher Verlagshaus, 2010), 107–14; J. Scurlock, "Medicine and Healing Magic," in *Women in the Ancient Near East*, ed. M. W. Chavalas (London: Routledge, 2014), 101–45; J. Scurlock, *Sourcebook for Ancient Mesopotamian Medicine* (Atlanta: SBL Press, 2014), 571–619; J. Scurlock and B. R. Andersen, *Diagnoses in Assyrian and Babylonian Medicine. Ancient Sources, Translations, and Modern Medical Analyses* (Urbana/Chicago: University of Illinois Press, 2005), 259–83. A comprehensive edition of the gynecological corpus is currently prepared by the present author.

and the social and natural environment—inhabited not only by humans and animals, but also by divine and demonic agents.[3]

If we look at the contexts of production and use of Mesopotamian medical literature, it should be emphasized that texts were circulated and transmitted within restricted groups of (male) scholars and healthcare professionals, especially among ritual specialists (*mašmaššu/āšipu*) and physicians (*asû*), although the gynecological material may also preserve traces of the orally transmitted knowledge of midwives who were involved in female healthcare. Texts such as rituals, medical recipes and tests were often marked as protected knowledge, by means of so-called secrecy phrases prohibiting disclosure to uninitiated persons.[4] Many medical texts belonged to the libraries of temples and royal palaces, where ritual specialists and physicians were often employed, but they were also unearthed in the private houses of scholars and healing practitioners.[5] The formats of the texts and the technical jargon point to their instrumental role in medical practice and training, as well as to their broader importance in scholarly learning. As a related characteristic of Mesopotamian medical texts, their authorship or origin is usually attributed to deities or to legendary sages in order to bolster their authority, even though text colophons and annotations sometimes inform us of the human copyist of a tablet and the source he used, or of the work of famous scholar-redactors connected with the serialisation of the medical corpus.[6]

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[3] For a general overview and discussion of Mesopotamian medicine see G. Majno, *The Healing Hand. Man and Wound in the Ancient World* (Cambridge: Harvard University Press, 1975), 29–68; R. D. Biggs, "Medizin. A. In Mesopotamien," in *Reallexikon der Assyriologie und Vorderasiatischen Archäologie* 7, ed. D. O. Edzard (Berlin/New York: de Gruyter, 1990), 623–29; R. D. Biggs, "Medicine, Surgery, and Public Health in Ancient Mesopotamia," in *Civilizations of the Ancient Near East*, Volume III, ed. J. M. Sasson (New York: Charles Scribner's Sons, 1995), 1911–1924; P. Attinger, "La médecine mésopotamienne," *Le Journal des Médecines Cunéiformes* 11–12 (2008): 1–96; M. J. Geller, *Ancient Babylonian Medicine. Theory and Practice* (Malden: Wiley-Blackwell, 2010); F. M. Fales, "Anatomy and Surgery in Ancient Mesopotamia: A Bird's-eye View," in *Anatomy and Surgery from Antiquity to the Renaissance*, ed. H. Perdicoyianni-Paléologou (Amsterdam: Adolf M. Hakkert Editore, 2016), 3–71. For a review of the literature on Mesopotamian medicine see E. Robson, "Mesopotamian Medicine and Religion: Current Debates, New Perspectives," *Religion Compass* 2/4 (2008): 455–83. For "magic" rituals in the context of healing, see the overview in D. Schwemer, "Magic Rituals: Conceptualization and Performance," in *The Oxford Handbook of Cuneiform Culture*, ed. K. Radner and E. Robson (Oxford: Oxford University Press, 2011), 419–41.

[4] See A. Lenzi, *Secrecy and the Gods: Secret Knowledge in Ancient Mesopotamia and Biblical Israel* (Helsinki: The Neo-Assyrian Text Corpus Project, 2008); A. Lenzi, "The Uruk List of Kings and Sages and Late Mesopotamian Scholarship," *Journal of Ancient Near Eastern Religion* 8/2 (2008): 137–69; K. Stevens, "Secrets in the Library: Protected Knowledge and Professional Identity in Late Babylonian Uruk," *Iraq* 75 (2014): 211–53.

[5] See E. Robson, "Mesopotamian Medicine and Religion," 458f.; E. Robson, "The production and dissemination of scholarly knowledge," in *The Oxford Handbook of Cuneiform Culture*, ed. K. Radner and E. Robson (Oxford: Oxford University Press, 2011), 557–76; P. Clancier, *Les bibliothèques en Babylonie dans la deuxième moitié du Ier millénaire av. J.-C.* (Münster: Ugarit-Verlag, 2009); S. M. Maul, "Die Tontafelbibliothek aus dem sogenannten 'Haus des Beschwörungspriesters,'" in *Assur-Forschungen. Arbeiten aus der Forschungsstelle "Edition literarischer Keilschrifttexte aus Assur" der Heidelberger Akademie der Wissenschaften*, ed. S. M. Maul and N. P. Heeßel (Wiesbaden: Harrassowitz, 2010), 189–228. Beside the texts

When we reconstruct ancient concepts of anatomy and physiology, it is important to take into account the fact that access to exact anatomical knowledge of the inner body was limited in antiquity, and that the understanding of physiology was vague compared with modern standards. The Mesopotamians did not practice dissection, nor did they embalm corpses as the Egyptians did. Neither do the medical cuneiform texts contain anatomical drawings. The main sources of knowledge for the anatomy and physiology of the inner body included: a) observations of externally visible bodily symptoms and processes, from which conclusions concerning inner processes and structures were drawn, b) observations of injuries (accidents, battles injuries), and c) knowledge of the anatomy of animals as a result of butchery and the practice of extispicy. In the context of knowledge concerning the female body and sexual reproduction, Mesopotamian healers also drew on observations of aborted, malformed or stillborn fetuses—human and animal—in various stages of development, as documented in teratological omen texts, which formed part of the corpus of the ritual specialist.[7]

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found in scholarly or institutional tablet collections, there are examples of texts reflecting applied medical practice, e.g. protective amulet tablets bearing incantations (e.g. against illness and for childbirth), some of which were unearthed in the houses/commercial archives of Old Assyrian merchants at Kanesh, see G. Barjamovic, "Contextualizing Tradition: Magic, Literacy and Domestic Life in Old Assyrian Kanesh," in *Texts and Contexts. The Circulation and Transmission of Cuneiform Texts in Social Space*, ed. P. Delnero and J. Lauinger (Boston/Berlin: de Gruyter, 2015), 48–86.

[6] See H. Hunger, *Babylonische und assyrische Kolophone* (Kevelaer: Butzon und Bercker, 1968); I. L. Finkel, "Adad-apla-iddina, Esagil-kīn-apli and the Series SA.GIG," in *A Scientific Humanist. Studies in Memory of Abraham Sachs*, ed. E. Leichty, M. deJong Ellis and P. Gerardi (Philadelphia: The University Museum, 1988), 143–59; N. P. Heeßel, "Neues von Esagil-kīn-apli. Die ältere Version der physiognomischen Omenserie *alamdimmû*," in *Assur-Forschungen. Arbeiten aus der Forschungsstelle «Edition literarischer Keilschrifttexte aus Assur» der Heidelberger Akademie der Wissenschaften*, ed. S. M. Maul and N. P. Heeßel (Wiesbaden: Harrassowitz, 2010), 139–87; with further literature.

[7] For anatomical and physiological knowledge in Mesopotamian medicine, see e.g. Fales, "Anatomy and Surgery," 38f.; U. Steinert, "Körperwissen, Tradition und Innovation in der babylonischen Medizin," in *Körperwissen: Transfer und Innovation*, ed. A.-B. Renger and C. Wulf. Paragrana. Internationale Zeitschrift für Historische Anthropologie 25/1. (Berlin: de Gruyter,

A final point in contrast with the Greco-Roman medical literature is the fact that Mesopotamian medical texts are never written in the form of theoretical treatises, although they are not void of theory. Thus, due to their focus on the diagnosis and therapy of morbid and abnormal processes, gynecological texts lack general theoretical discussions about anatomy and physiology that is specific to the female body, and they do not explicitly comment on the anatomical differences between men and women, parts of the female reproductive system, and processes restricted to women such as menstruation, menopause, pregnancy, gestation and birth.

Nonetheless, the extant sources on women's healthcare from Mesopotamia in the 2nd and 1st millennia BCE contain a wealth of implicit and explicit information regarding healers' knowledge about female anatomy and physiology, which is mainly expressed through metaphors and analogies with phenomena in nature and everyday life, and which is found especially in the incantations that accompanied medical treatments. The remainder of this chapter presents an overview of Mesopotamian concepts on the female body, focusing on ideas about anatomy and the physiology of sexual reproduction marked by conception, gestation and birth. These anatomical and physiological concepts are pervasively expressed through metaphors and related imagery at several interrelated levels:

- at the level of the cuneiform script and languages transmitted in cuneiform (Sumerian and Akkadian terminology on body parts)
- at the level of texts (drawing on body metaphors for the purpose of healing, especially in incantations dealing with problems related to fertility and birth)
- at a text-hermeneutical level (in scholarly commentaries explaining and expanding the metaphors in medical texts)

Furthermore, metaphors are articulated in other artistic media (e.g., illustrations) and linked to cultural practices. In order to provide a multi-faceted description of body metaphors in Mesopotamian medicine and culture, this study includes textual sources spanning over more than two millennia. Such a cumulative approach highlights both aspects of long-term continuity and stability, as well as diversity and diachronic developments in the metaphoric understanding of the female body. These processes are also reflected in diachronic developments of the text corpus on healing, characterized both by

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2016), 195–254. For teratological omens, see N. de Zorzi, *La serie teratomantica Šumma izbu: testo, tradizione, orizzonti culturali* (Padova: SARGON Ed. e Lib., 2014).

long-term transmission of texts and by continuous production and addition of new textual material.

2 Metaphor, Medicine, and Culture

Over the last decades, numerous studies from various disciplines, especially from the fields of cognitive science, history and philosophy of science, and medical and cultural anthropology, have demonstrated the pervasiveness of metaphor and related tropes (such as metonymy and analogy) not only in human language, but also in cognition, everyday thinking, scientific reasoning and various other domains of culture. This research has shown that metaphor is not just a powerful "form of speech," but also a fundamental "form of thought with its own epistemological functions" (Gibbs 1994, 122, cited in Pritzker 2003). The basic claims of the highly influential conceptual metaphor theory, as developed by George Lakoff and Mark Johnson are that 1) meaning and mind are embodied, i.e., shaped by bodily experiences, and that 2) the human conceptual system is largely structured by metaphor, which is defined as a set of mappings between two conceptual domains.[8] More basic or concrete domains of experience generally serve as sources that structure more abstract or complex conceptual domains. In this framework, a metaphorical expression represents the linguistic surface manifestation of a cross-domain mapping at the conceptual level. As a link between body and conceptual structure, Lakoff and Johnson propose the existence of pre-conceptual image schemata, which emerge from our being-in-the-world, i.e., from our bodily structure and orientation, our movements through space and interactions with our environment, etc. An example of such a basic image schema, which lies at the heart of a cross-culturally prevalent metaphoric understanding of the body, is the CONTAINER schema. It is based on experiences of our bodies (as bounded entities) and its environment-interactions, e.g., our manipulation of objects or our movements through bounded spaces. The CONTAINER schema is invoked in numerous conceptual metaphors, such as THE MIND IS A CONTAINER or in INVASION metaphors, which dominate scientific and popular views of viruses infecting bodies.

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[8] G. Lakoff and M. Johnson, *Metaphors We Live by* (Chicago: Chicago University Press, 1980); M. Johnson, *The Body in the Mind. The Bodily Basis of Meaning, Imagination and Reasoning* (Chicago: University of Chicago Press, 1987); G. Lakoff, "The Contemporary Theory of Metaphor," in *Metaphor and Thought*, ed. A. Ortony (Cambridge: Cambridge University Press, 1993), 202–51. For the notion of embodiment in anthropology, influenced by phenomenological approaches in philosophy and psychology, foremost of all by M. Merleau-Ponty, *Phenomenology of Perception* (London: Routledge 1962), see T. J. Csordas, "Embodiment as a Paradigm for Anthropology," *Ethos* 18 (1990): 5–47; T. J. Csordas, "Introduction: The Body as Representation and Being-in-the-World," in *Embodiment and Experience. The Existential Ground of Culture and Self,* ed. T. J. Csordas (Cambridge: Cambridge University Press, 1994), 1–24; M. Kimmel, "Properties of Cultural Embodiment: Lessons from the Anthropology of the Body," in *Body, Language and Mind. Volume 2: Sociocultural Situatedness*, ed. R. M. Frank et al. (Berlin: de Gruyter, 2008), 77–108; N. Scheper-Hughes and M. M. Lock, "The Mindful Body: A Prolegomenon to Future Work in Medical Anthropology," *Medical Anthropology Quarterly, New Series* 1 (1987): 6–41; P. Violi, "Beyond the Body: Towards a Full Embodied Semiosis," in *Body, Language and Mind. Volume 2: Sociocultural Situatedness*, ed. R. M. Frank et al. (Berlin: de Gruyter, 2008), 53–76.

Of primary importance in the context of the present study are contributions on metaphor in science and medicine, on the one hand, as well as approaches from cultural anthropology and related fields in the social and historical sciences, which focus on the various functions of metaphors and shed light on the relations between metaphor and culture from different perspectives.[9]

Research of the past decades in the fields of the history of medicine and science has amply demonstrated that metaphors can constitute medical/scientific theories, that they can be a means for gaining new knowledge by

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9 Concerning the cultures and languages of the Ancient Near East, Rune Nyord studied body metaphors and concepts in Egyptian texts within the framework of conceptual metaphor theory and lexical semantics (see R. Nyord, "The Body in the Hymns to the Coffin Sides," *Chronique d'Égypte* 82 (2007): 5–34; R. Nyord, *Breathing Flesh. Conceptions of the Body in ancient Egyptian Coffin Texts* (Copenhagen: Museum Tusculanum Press, 2009); R. Nyord, "Prototype Structures and Conceptual Metaphor. Cognitive Approaches to Lexical Semantics in Ancient Egyptian," in *Lexical Semantics in Ancient Egyptian*, ed. E. Grossman, S. Polis and J. Winand (Hamburg: Widmaier Verlag, 2012), 141–74. See also his contribution in this volume. For the metaphoric and metonymic uses of Akkadian body part terms and concepts of the body in Mesopotamian texts see U. Steinert, *Aspekte des Menschseins im Alten Mesopotamien. Eine Studie zu Person und Identität im 2. und 1. Jt. v. Chr.* (Leiden/Boston: Brill, 2012); K. Müller and A. Wagner, *Synthetische Körperauffassung im Hebräischen und in den Sprachen der Nachbarkulturen* (Münster: Ugarit-Verlag, 2014) for a comparative perspective; for body and illness metaphors in Mesopotamian medicine see first approaches by U. Steinert, "Fluids, Rivers, and Vessels: Metaphors and Body Concepts in Mesopotamian Gynaecological Texts," *Journal des Médecines Cunéiformes* 22 (2013): 1–23; B. Böck, *The Healing Goddess Gula. Towards an Understanding of Ancient Babylonian Medicine* (Leiden/Boston: Brill, 2014), 115–28. For Hittite body part terms and their metaphoric extension see also H. A. Hoffner, Jr., "From Head to Toe in Hittite: The Language of the Body," in *"Go to the Land I Will Show You." Studies in Honor of Dwight W. Young*, ed. J. E. Coleson and V. H. Matthews (Winona Lake: Eisenbrauns, 1996), 247–59; P. Dardano, "'La main est coupable', 'le sang devient abondant': sur quelques expressions avec des noms de parties et d'éléments du corps humain dans la littérature juridico-politique de l'Ancien et du Moyen Royaume Hittite," *Orientalia Nova Series* 71 (2002): 333–92.

providing structure to a still unstructured field of investigation, in order to describe the unknown in terms of something known.[10] This applies in particular to theories of physiology in medicine before the modern period, which widely relied on analogical models and metaphors drawn from the natural world and from technology to explain how the body functioned, because many processes in the living body could not be directly observed.[11]

In science in general, and in medicine in particular, metaphors have been recognized as indispensable instruments with explanatory functions, facilitating communication between doctor and patient, and shaping therapeutic strategies.[12] The persuasive and performative aspects of metaphoric assertions have also been highlighted in the context of religious or healing rituals (Fernandez 1986). In a similar way, Niek Veldhuis (1999) and Daniel Schwemer (2014) discussed the rhetorical functions of the figurative language in Akkadian incantations as part of therapeutic rituals, and highlighted communicative and persuasive aspects. Not only does the figurative language of incantations facilitate communication between healer and client, by clarifying the meaning of the ritual performance, figurative language is also instrumental for achieving the ritual's objective: it helps to describe and define the client's problem and, by appealing to emotions and evoking divine authority, can bring about a change in the client's situation.

Moreover, it has not gone unnoticed that metaphors in science are part of discourses interacting with (popular) culture. Research in this direction has developed the notion of *discourse metaphors*, which frame modes of thought, expressions and actions of a community in a certain period (Nerlich 2011). It has also been pointed out that metaphors work as "filters" that highlight certain aspects of reality while hiding others (van Rijn-van Tongeren 1997; Sarasin 2003). Similarly, Emily Martin (1991; 1992) has disclosed the gender stereotypes underlying scientific accounts of reproductive biology, also observable in metaphors of women's bodies that dominate discussions of menopause. While most accounts of conception project the stereotypical roles of the passive female and active male onto those of the egg and the sperm, scientific descriptions of menstruation and menopause are vastly dominated by negative images of the female body, like the "idle machine," the "failed business," or the "disused factory."[13]

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[10] See M. Hesse, "Models, Metaphors and Truth," in *From a Metaphorical Point of View: A Multidisciplinary Approach to the Cognitive Content of Metaphor*, ed. Z. Radman (Berlin: de Gruyter, 1995), 351–72; Z. Radman, "How to Make Our Ideas Clear with Metaphors," in *From a Metaphorical Point of View: A Multidisciplinary Approach to the Cognitive Content of Metaphor*, ed. Z. Radman (Berlin: de Gruyter, 1995), 225–56; P. Sarasin, "Infizierte Körper, kontaminierte Sprachen. Metaphern als Gegenstand der Wissenschaftsgeschichte," in *Geschichtswissenschaft und Diskursanalyse* (Frankfurt am Main: Suhrkamp, 2003), 191–230; for views regarding the epistemological role of metaphor and analogy in Greek and later philosophy/science see also L. Taub, "Physiological Analogies and Metaphors in Explanations of the Earth and the Cosmos," in *Blood, Sweat and Tears. The Changing Concepts of Physiology from Antiquity into Early Modern Europe*, ed. M. Horstmanshoff, H. King, and C. Zittel (Leiden/Boston: Brill, 2012), 41–63.

[11] See Horstmanshoff, King, and Zittel, eds., *Blood, Sweat and Tears. The Changing Concepts of Physiology from Antiquity into Early Modern Europe* (Leiden/Boston: Brill, 2012).

[12] See G. W. van Rijn-van Tongeren, *Metaphors in Medical Texts* (Amsterdam: Rodopi, 1997); R. Charon, "Doctor-Patient/Reader-Writer: Learning to Find the Text," in: *Special Section: Metaphors, Language, and Medicine. Soundings: An Interdisciplinary Journal* 72/1 (1989): 137–52; A. Howard Carter, "Metaphors in the Physician-Patient Relationship," in: *Special Section: Metaphors, Language, and Medicine. Soundings: An Interdisciplinary Journal* 72/1 (1989): 153–64.

Another strand of research offering important insight for the present study concerns the interrelation of metaphor and culture. Thus, it has been emphasized that, through their integrating character, tropes like metaphor and analogy bring into play a whole network of common-sense associations. Research in the tradition of conceptual metaphor theory argues that conceptual metaphors not only relate to each other in structured ways, but that they also constitute cultural models (Kövecses 1999; Cienki 1999).[14] This principle

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13 See also P. Sarasin, *Geschichtswissenschaft und Diskursanalyse* (Frankfurt am Main: Suhrkamp, 2003), 45f. The grounding of medical notions of the female body in gender constructs has a long history. For the ancient Greek world, see L. Dean-Jones, "The Cultural Construct of the Female Body in Classical Greek Science," in *Women's History and Ancient History*, ed. S. B. Pomeroy (Chapel Hill/London: University of North Carolina Press, 1991), 111–37; A. E. Hanson, "The Medical Writer's Woman," in *Before Sexuality. The Construction of Erotic Experience in the Ancient Greek World*, ed. D. M. Halperin, J. J. Winkler and F. I. Zeitlin (Princeton: Princeton University Press, 1990), 309–37; A. E. Hanson, "Conception, Gestation, and the Origin of Female Nature in the *Corpus Hippocraticum*," *Helios* 19 (1992): 31–71; H. King, *Hippocrates' Woman. Reading the Female Body in Ancient Greece* (London/New York: Routledge, 1998).

14 G. Lakoff and Z. Kövecses show that the multiple metaphors for a particular phenomenon usually fall into a small number of source domains or classes, as seen, e.g., in metaphors for abstract concepts such as anger and love or in illness metaphors (G. Lakoff and Z. Kövecses, "The Cognitive Model of Anger Inherent in American English," in *Cultural Models in Language and Thought*, ed. D. Holland and N. Quinn (Cambridge: Cambridge University Press, 1987), 195–221; Z. Kövecses, "Metaphor: Does it Constitute or Reflect Cultural Models?" In *Metaphor in Cognitive Linguistics*, ed. L. W. Gibbs, Jr. and G. J. Steen (Amsterdam/Philadelphia: John Benjamin Publishing Company, 1999), 167–88; G. W. van Rijn-van Tongeren, *Metaphors in Medical Texts*, 62–78). N. Quinn and D. Holland argue on the other hand that the selection of a metaphor is also determined by the pre-existing cultural model underlying the target domain (N. Quinn and D. Holland, "Culture and Cognition," in *Cultural Models in Language and Thought*, ed. D. Holland and N. Quinn

has otherwise been described as the "systematicity of conceptual metaphorical thinking," depicting metaphor as the mechanism or "glue" that connects the various (linguistic, material, aesthetic) forms in cultural meaning networks (Danesi 2013). This approach is significant for the Mesopotamian evidence discussed below, where metaphorical concepts of the body found in the gynecological texts are expressed in various media and domains of culture. Marcel Danesi uses the notion "metaform" to refer to a node in a semiotically connected system of references to other metaforms, codes and texts, which are constituted by a conceptual metaphor. Thus, objects, rituals, symbols, etc. are signs connected by metaphorical meaning, which are distributed throughout the cultural meaning network.[15]

Important insights into the interrelation between metaphor, body and culture as reflected in medical theory and practice can be found in the contributions of Sonya Pritzker (2003) and Ning Yu (2008) on metaphors in Western and Chinese Medicine. Yu proposes a "circular triangular" model that describes the mutual relationship among metaphor, body and culture: 1) Metaphors are grounded in bodily experiences, many of which are universally shared by all human beings. For this reason, different languages like Chinese or English share some conceptual metaphors, as seen, for instance, in comparative body part terminology/semantics and in illness metaphors. 2) Cultural models as "shared understandings of the world" are often structured by conceptual metaphors, but they also "filter" and interpret bodily experiences, and by providing meaning and attaching values, affect the formation of metaphors (in a promoting or restraining fashion). This is reflected in varied conceptual metaphors in different languages. 3) Finally, metaphors "by structuring cultural models, can also affect the understanding of bodily experience" (Yu 2008, 389).[16]

(Cambridge: Cambridge University Press), 1987, 3–40). Furthermore, according to R. W. Gibbs, conceptual metaphors such as ANGER IS A HOT FLUID IN A CONTAINER are also shaped by cultural knowledge and constructions of bodily experience (R. W. Gibbs, "Taking Metaphor out of Our Heads and Putting It into the Cultural World," in *Metaphor in Cognitive Linguistics*, ed. R. W. Gibbs and G. J. Steen (Amsterdam: John Benjamins Publishing Company, 1999), 145–66).

[15] M. Danesi, "On the Metaphorical Connectivity of Cultural Sign Systems," *Signs and Society* 1/1 (2013): 35ff. An example for connected metaforms used by the author is chocolate associated with Valentine's day rituals, which are related to the metaphor LOVE IS A SWEET TASTE.

[16] See also M. Kimmel, "Properties of cultural embodiment," 83ff., commenting on the dialectical relationship between bodily experience grounding conceptual schemas and culture-specific practices/discourses refining these schemas and mediating concept acquisition, thus shaping embodiment/bodily experiences.

Sonya Pritzker (2003) draws attention to the fact that medical theories typically turn to the natural or cultural environment as source domains to interpret bodily processes that cannot be directly understood or observed, which is reflected in the cross-culturally widespread understanding of the body in terms of the natural world (microcosm—macrocosm), or in the pervasive use of technological models to describe the body, as found in the Western history of medicine.[17] The application of environment-based metaphors in Chinese medicine has been termed either as "understanding by analogy" (Wiseman 1995) or as conceptual metaphor (often of a relational kind) linking embodied and cultural experience. These metaphors serve to conceptualize illness processes and implement therapies (Pritzker 2003). Examples of such analogies or relational metaphors include the view of the body organ-system in terms of the state hierarchy of government/military officials, and the image of the channels in the body as conduits mirroring the centralized system of water management, as they are matched with rivers in China. Because this analogical mapping of body and cosmos is systematic to a high degree and embedded in a complex system of physiology, Vivienne Lo (personal communication) in her analysis of Chinese notions of *Qi* flowing in the body prefers to speak of homology rather than metaphor or analogy, but this may be regarded as a matter of terminological definition.[18] Moreover, Elisabeth Hsu (2007), in a study on the concept of the "five agents" in Chinese medicine, has coined the term "body ecologic" for these ideational correlations between the body and the environment, arguing that such conceptualizations of the body convey "culture-specific knowledge about experiences of ecological processes."[19] Hsu underscores, at the same time, the fact that these correlations between bodily and environmental processes were useful to Chinese physicians by helping them to discover "resonances" between visible phenomena in the world and hidden processes in the body. Thus, the relation between the domains body/world is one of mutual signification and elucidation.

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[17] For the technological models/metaphors as tools to imagine physiological processes (and vice versa) see also Horstmanshoff, King, and Zittel, *Blood, Sweat and Tears*.

[18] Following the discussion of Quinn and Holland ("Culture and Cognition," 3ff.), such ideational complexes in ancient medicine may also be regarded as elaborated physiological models based on the mapping of image-schemas between a source and target domain of the same order (i.e., both belonging to the physical world). In terms of the unifying typology of D. Gentner and colleagues, such mapping processes can be called analogy or relational metaphor (D. Gentner et al., "Metaphor is like analogy," in *The Analogical Mind. Perspectives from Cognitive Science*, ed. D. Gentner, K. J. Holyoak and B. N. Kokinov (Cambridge: MIT Press, 2001), 200). For the systematicity of extended and elaborated metaphorical mappings in the construction of theoretical models see M. Black, *Models and Metaphors: Studies in Language and Philosophy* (Ithaca: Cornell University Press, 1962), 25–47; D. Gentner et al., "Metaphor is like analogy," 208; G. W. van Rijn-van Tongeren, *Metaphors in Medical Texts*, 25f., 102f.

[19] E. Hsu, "The biological in the cultural: the five agents and the body ecologic in Chinese medicine," in *Holistic Anthropology. Emergence and Convergence*, ed. D. Parkin and

Furthermore, anthropological studies of illness concepts in African lineage-based societies point out the social dimension of body-environment correlations in medical systems. Marc Augé (1995) argues that, in illness concepts, the biological and the social order are linked through a "logic of differences" characterized by opposition and equivalence (e.g., seen in binary categories such as hot/cold, wet/dry, blood/earth), and through a "logic of references," i.e., a principle of coherence between the biological and the social, visible in diagnosis (e.g., in disease etiologies linking physical imbalance with a disturbed social relationship) and therapy (e.g., in the association of plants with spirits/gods). In line with this argument, Françoise Héritier (1995) speaks of "invariants of symbolic thought" visible in cultural discourses on female sterility, which postulate a "homology between the nature of the world, the individual body and society," in so far as views of female sterility revolving around the notion of "blood" are not only aligned with categories such as hot/cold, wet/dry, but are at the same time linked with a discourse on social practice and rules of conduct, regarding the relation between the sexes/generations and the behaviour connected to sexuality and reproduction (Héritier 1995, 98ff.). The logic of references/differences formulated by Augé and Héritier helps us to recognize similar patterns of coherence between Mesopotamian technological body metaphors and views of women's reproductive and socio-economic roles.

Within the field of Assyriology, Joan Goodnick Westenholz's ground-breaking work on "symbolic language" and on the typology of tropes in Akkadian literature is especially relevant for the present analysis of body metaphors.[20] In par-

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S. Ulijaszek (New York/Oxford: Berghahn, 2007), 92. Her genealogical analysis of the development of body concepts connected to the "five agents," influenced by the three approaches to studying the body outlined by N. Scheper-Hughes and M. M. Lock, "The Mindful Body," 6–41, is of particular interest in the context of the present study, by pointing out both the long-term stability of concepts connected to the "body ecologic," as well as their changing significance as part of elaborate "symbolic systems," shaped by complex historical processes.

[20] J. Goodnick Westenholz, "Symbolic Language in Akkadian Narrative Poetry: The Metaphorical Relationship Between the Poetical Image and the Real World," in *Mesopotamian Poetic Language: Sumerian and Akkadian*, ed. M. E. Vogelzang and H. L. J. Vanstiphout (Groningen: Styx, 1996), 183–206. Goodnick Westenholz (184–86) differentiates four types of symbolic processes or metaphorical relations at work in figures of

ticular, Goodnick Westenholz emphasized that, in order to fully understand metaphors in Akkadian texts, all levels of meaning (literal/realistic, metaphorical/figurative and symbolic/mythic levels) of metaphoric imagery have to be taken into account simultaneously, because metaphors involve relations and transferences between semantic fields. Complex images and metaphors in Mesopotamian texts can be flexible and capable of referring "to several levels of perception at the same time" (Goodnick Westenholz 1996, 193), as she illustrates in her analysis of the multiple, interrelated aspects of meaning involved in Mesopotamian flood imagery. Furthermore, she rightly points out that an understanding of the cultural context (the native world view) is necessary to comprehend Mesopotamian metaphors, and this includes the symbolic potential of words as complex signifiers.

This study embraces the cognitive and anthropological approaches just outlined for an analysis of metaphors and imagery connected to the reproductive female body and its physiology in Mesopotamian medicine. This analysis aims to elucidate the different levels of meaning evoked by body metaphors, their "connectivity" with other cultural domains, and to address the interrelations among body, metaphor and culture. Highlighting cross-cultural parallels for metaphors of the female reproductive organs and reproductive physiological processes will illustrate similarities in human understanding of the body and its processes, but at the same time the focus will be on culture-specific configurations of metaphors, their connections to cultural practices, as well as the ways metaphors serve as the basis for underlying cultural models and discourses on gender roles and relations.

3 Metaphors and the Terms for the Female Reproductive System

3.1 *Vulva, Vagina*

If we compare the terminology for male and female reproductive organs attested in the Mesopotamian medical and other texts, one notices a wealth of terms both in the Sumerian and Akkadian language for female genital parts in comparison with only few terms for the male genitalia, which may partly be due to the fact that female reproductive anatomy is more invisible and hence was

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speech: 1) congruence (assertion of similarity, A is (like) B), 2) analogy (involving an analogical relationship, A is to X as B is to Y, thus A is B), 3) identity (or metaphor, A is B), and 4) semantic transformation (or "association by contiguity," A may be substituted by B within a certain semantic field). These metaphorical relations can be "marked" or "unmarked" linguistically (e.g., by prepositions or morphemes).

more difficult to understand for the ancients, inspiring creative imagination more than male anatomy.[21] While figurative expressions are a general feature of Sumerian and Akkadian body part terminology (see also Strahil Panayotov, *infra*), and were applied to the genital organs of both sexes often in a euphemistic fashion, female reproductive organs generated especially many metaphoric expressions as well as metonymic associations.[22] These metaphors are found at the interrelated levels of language and cuneiform script, based on the polyvalence and polysemy of signs. For instance, the main Akkadian term for the (female) genitals, *ūru*, is equated with Sumerian gal$_4$-la, which bestowed its value on the Akkadian logogram (GAL$_4$) for *ūru*.[23] The element gal$_4$ is written with the sign SAL, which can also be read MUNUS "woman." The archaic sign form of SAL depicts the pubic triangle (Fig. 9.1). Thus, the female genitals stand *pars pro toto* (or metonymically) for "female being."[24]

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[21] See H. King, "Inside and Outside, Cavities and Containers: The Organs of Generation in Seventeenth-Century English Medicine," in *Medicine and Space: Body, Surroundings and Borders in Antiquity and the Middle Ages,* ed. P. A. Baker, H. Nijdam, and K. van 't Land (Leiden: Brill, 2012), 37–60, discussing similar scholarly views concerning the understanding of the reproductive organs in seventeenth-century England. Thus, Jerold Cooper notes that in Tablet 15 of the lexical list ur$_5$-ra = *ḫubullu,* published by B. Landsberger, ḪAR-ra = *ḫubullu Tablet XV and related texts*, Materialien zum Sumerischen Lexikon 9 (Roma: Pontificium Institutum Biblicum, 1967), in the section concerned with Sumerian and Akkadian terms for the genitals organs (ll. 205–28), the male parts merit only five entries for penis and testicles, while the following twenty-one entries are devoted to the female reproductive organs, organized by moving from the external genitalia inward to the uterus (cf. J. S. Cooper, "Virginity in ancient Mesopotamia," in *Sex and Gender in the Ancient Near East* 1, ed. S. Parpola and R. M. Whiting (Helsinki: Neo-Assyrian Text Corpus Project, 2002), 100, 106; and below for a discussion of some terms).

[22] Note for the male genitals, the Akkadian metaphoric expressions *appi i/ušari* "nose of the penis" for the glans, *tukkannāt iškī* "bags of the testicles" for the scrotum, and the analogy between kidneys and testicles in the expression "kidney(s) of the genitals" (*kalīt birki*) for *išku* "testicle(s)" (see CAD U/W, 298; CAD T, 456f.; CAD I/J, 250f.; MSL 9, 11, 34: 19f.). Note also the metonymic use of *išku* "testicle" for "son."

[23] Akkadian *ūru* (like *sūnu*, *utlu* and *birku* "lap, pubic region") can be used for the genitalia of both sexes as well as specifically for the vulva. For the terms for vulva and pubic region, see also B. Böck, "Schoß," in *Reallexikon der Assyriologie und Vorderasiatischen Archäologie* 12, ed. M. P. Streck (Berlin/New York: de Gruyter, 2011), 248–50; B. Böck, "Vulva. A Philologisch," in *Reallexikon der Assyriologie und Vorderasiatischen Archäologie* 14, ed. M. P. Streck (Berlin/New York: de Gruyter, 2016), 598–600. The Hittite terms for the genitals are discussed in H. A. Hoffner, Jr., "From Head to Toe in Hittite," 248f.

[24] See also J. M. Asher-Greve, "The Essential Body: Mesopotamian Conceptions of the Gendered Body," *Gender and History* 9 (1997): 434f. This metonymy on the level of the

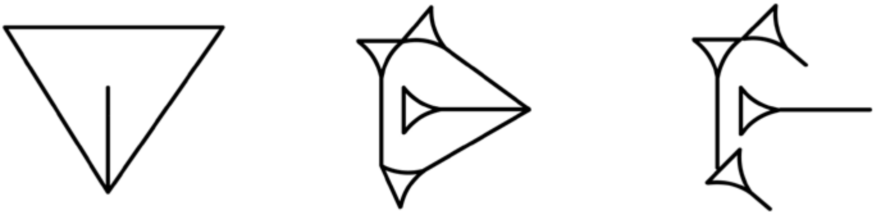

FIGURE 9.1 *The sign* SAL *from the archaic to the first millennium* BCE (*Neo-Assyrian*) *form. After: R. Labat 1988, No. 554.*

A widespread phenomenon noted in studies of metaphor research is the understanding of the body in terms of elements in the natural and cultural environment. This is also evident in Sumerian and Akkadian terminology for body parts. Thus, some Sumerian metaphoric terms for the female genitals draw on the spatial domain and on architectural terms, expressing the metaphors THE BODY IS A LANDSCAPE and THE BODY IS A HOUSE.[25] Examples are the designations ^{uzu}kur-pa-paḫ ("hill-chamber"), ^{uzu}pa-paḫ ("chamber"), and ^{uzu}mìn-é ("twin house/room"), which evoke the dominantly internal "geography" of the female genitalia.[26] In this connection, we may also note that the various meanings of Sumerian murub/murub$_2$ "middle (of the body)" comprise a semantic pattern observable for body part terms in many languages, in which terms for body parts/regions are semantically extended to spatial locations (this is not an example of metaphor strictly speaking, but involves a similar semantic correlation between body parts and spatial entities). Thus, murub/murub$_2$ designates not only the female genitals or vulva, but also a body

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script has a corresponding counterpart in the sign UŠ, which can be read nita "man, male" and gìš "penis" respectively, and which in the archaic script depicts the male organ.

[25] For the metaphor THE BODY IS A HOUSE serving as a fundamental anthropological model in Mesopotamian thought see A. Zgoll, "Der oikomorphe Mensch. Wesen im Menschen und das Wesen des Menschen in sumerisch-akkadischer Perspektive," in *Der ganze Mensch. Zur Anthropologie der Antike und ihrer europäischen Nachgeschichte*, ed. B. Janowski (Berlin: Akademie Verlag, 2012), 83–106. Böck, *The Healing Goddess Gula*, 115–28 has analyzed examples of landscape metaphors in Mesopotamian medical incantations, and how they conceptualize disease and bodily processes.

[26] For these terms see Landsberger, ḪAR-ra = *ḫubullu Tablet XV*, 12: 211–213; Böck, "Vulva," 598 § 1.2. For pa-paḫ as a room in a house/temple, interpreted as "bedchamber" or "reception room," see W. Sallaberger, review of R. L. Zettler, *The Ur III Temple of Inanna at Nippur*, ZA 84 (1994): 136–44, esp. 139; J. Goodnick Westenholz, "Nanaya: Lady of Mystery," in *Sumerian Gods and Their Representations*, ed. I. L. Finkel and M. J. Geller (Groningen: Styx, 1997), 57–84, esp. 64f.

region including the "hips; buttocks; rump." A second semantic level attached to murub is the notion "mouth; opening," which is extended to spatial locations such as "gate (of city or large building); middle; space between, distance; link."[27]

A few Akkadian terms for the female genitals, found not only in medical, but also literary texts and lexical lists, reflect a spatial/architectural imagery as well. Thus, a Neo Assyrian gynecological text speaks of *bāb ūri* "the gate (opening) of the vagina," while a Late Babylonian medical commentary provides a metaphoric interpretation for *ḫurdatu* "vagina" as *ḫurri dādi* "the hole of the darling, i.e., the baby."[28]

Sumerian erotic poetry, in particular, focuses on metaphoric descriptions of female sexual parts and female sexual pleasure by extensively drawing on environmental imagery (Leick 1994). In these compositions, the vulva is compared most prominently to a garden, and its various products (fruits) as well as to a field that is watered or ploughed.[29] Watering and ploughing are metaphors for sexual intercourse that are intimately connected to ideas of female fertility and conception, as will be discussed below.[30] Here, another issue has to be addressed, namely, the question on the extent to which body part terms and metaphors reflect and express indigenous knowledge of anatomical structures. The imagery for the female sexual organs in Sumerian and Akkadian texts seems to reflect an understanding of anatomy that is vague, while simultaneously alluding to bodily experience. Thus, some Sumerian and Akkadian expressions and terms for the female genitals evoke structural aspects such as shape, e.g., the comparison of pubic hair to lettuce or a spider web.[31] Similarly, the expression "the lips of my 'ring' (i.e., vulva)" found in an Akkadian incantation may refer to the labia, extending the analogy between the vagina and the mouth.[32] The imagery of some terms does not allow an exact anatomical identification and is open to multiple interpretations, especially if the contextual clues are few. For example, the Sumerian expression ^{uzu}mìn-é "twin house/room" could refer to the double structure of the vulva with the *labia maiora* and *minora*, but it could also hint at an image of the uterus stemming from animal anatomy (cf. below).[33] Similarly, the bird imagery found in terms for the genitals and in erotic poetry may refer to different things in different instances: while the "dubdub-bird in its hole" in a Šulgi hymn is likely a reference to the clitoris, other bird images relate more broadly to sexual intercourse rather than to anatomical structures.[34] It is noteworthy that the gynecological texts themselves use a very limited repertoire of anatomical terms restricted mainly to the vulva/vagina and the womb, including the amnion and the placenta/afterbirth.

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[27] See the *Electronic Pennsylvania Sumerian Dictionary* (ePSD, http://psd.museum.upenn.edu/epsd/nepsd-frame.html). For the semantic development of body part terms, including their use as spatial relators, see S. Svorou, *The Grammar of Space* (Amsterdam/Philadelphia: John Benjamins, 1994). The Akkadian evidence is discussed in U. Steinert, "Topologische und projektive Relationen in akkadischen Keilschrifttexten," in *On Ancient Grammars of Space. Linguistic Research on the Expression of Spatial Relations and Motion in Ancient Languages*, ed. S. Kutscher and D. A. Werning (Berlin: de Gruyter 2014), 109–94.

[28] BAM 237 i 3': KÁ GAL$_4$.LA, for the text edition see J. Scurlock, *Sourcebook for Ancient Mesopotamian Medicine* (Atlanta: SBL Press, 2014), 573; M. Civil, "Medical Commentaries from Nippur," *JNES* 33 (1974): 332, 335 lines 42–43; Scurlock, *Sourcebook*, 353; E. Frahm, *Babylonian and Assyrian Text Commentaries. Origins of Interpretation* (Münster: Ugarit-Verlag, 2011), 71. *Dādu* is explained as a synonym of *māru* "child; son" (*malku = šarru* I 149, see I. Hrůša, *Die akkadische Synonymenliste malku = šarru. Eine Textedition mit Übersetzung und Kommentar* (Münster: Ugarit-Verlag, 2010), 311.

[29] In literary texts, the imagery of the garden is predominantly found in female discourses expressing female sexual desire and pleasure (not stressing procreation), while the image of ploughing the field is tied to male sexual desire and an expression for fertile intercourse leading to procreation (M.-F. Besnier, "Temptation's Garden: The Gardener, a Mediator Who Plays an Ambiguous Part," in *Sex and Gender in the Ancient Near East* 1, ed. S. Parpola and R. M. Whiting. Helsinki: Neo-Assyrian Text Corpus Project, 2002), 59–70.

[30] This agricultural analogy for sexual intercourse and reproduction is also implied in the term *nadītu*, designating women who were dedicated ("wed") to a god, and to whom it was usually forbidden to marry or to bear children. *Nadītu* literally means "the fallow/uncultivated one" (from *nadû*, said also of fields). Sexual metaphors such as the field and the plough thus also reveal cultural views of gender roles and gendered sexuality.

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[31] G. Leick, *Sex and Eroticism in Mesopotamian Literature* (London/New York: Routledge, 1994), 120–23; M. Civil, "be$_5$/pe-en-ze$_2$-er = *biṣṣūru*," in *If a Man Builds a Joyful House: Assyriological Studies in Honor of Erle Verdun Leichty*, ed. A. K. Guinan (Leiden/Boston: Brill, 2006), 55–61. Similarity of shape is often alluded to in the imagery for the male and female genitals in erotic poetry, e.g., in comparisons with plants and fruits or with tools and weapons, see R. D. Biggs, Šà.zi.ga. *Ancient Mesopotamian Potency Incantations* (New York: Augustin, 1967). Note also the shell as an image for the female genitals, encountered in the designation *biṣṣūr atāni* "donkey mare's vulva" as the name of a shell (see CAD B, 269a; A. L. Oppenheim, "Mesopotamian Conchology," *Orientalia Nova Series* 32 (1963): 408–10; A. Schuster-Brandis, *Steine als Schutz- und Heilmittel. Untersuchung zu ihrer Verwendung in der Beschwörungskunst Mesopotamiens im 1. Jt. v. Chr.* (Münster: Ugarit-Verlag, 2008), 439). Note also the image of the vulva as a boat (Y. Sefati, *Love Songs in Sumerian Literature* (Ramat Gan: Bar-Ilan University Press, 1998), 220, 224 col. ii 20f.).

[32] See S. Panayotov, "A Ritual for a Flourishing Bordello," *Bibliotheca Orientalis* 70 (2013): 293ff.: 30f.

[33] Cf. J. S. Cooper, "Virginity," 106, with an interpretation of *lipiššatu* as the labia. The Sumerian equivalents and Akkadian explanations found in the lexical lists such as ur$_5$-ra = *ḫubullu* Tablet 15 suggest that the anatomical terminology was rather semantically fuzzy and vague than exact. Cf. the comments of M. Civil, "be$_5$/pe-en-ze$_2$-er = *biṣṣūru*," 55ff. and J. S. Cooper, "Virginity," 106 for an interpretation of Akk. *ḫanduttu* as "clitoris." Open to a differing interpretation is also Cooper's reading of Akkadian *šišītu* "membrane" as the hymen, which could alternatively be understood as a term for the amniotic sac/foetal membrane, since it is found beside other words for the amnion in lexical lists, see CAD Š/3, 125 s.v. *šišītu*, lexical section. For the fuzziness and vagueness of anatomical terms that has been noted for medical systems prior to the modern period (see King, "Inside and Outside"; Horstmanshoff, King, and Zittel, *Blood, Sweat and Tears*); cf. Cooper, "Virginity," 99f. for the obstacles precluding the recognition of the hymen in the history of medicine.

3.2 *Uterus, Womb*

Turning to Sumerian and Akkadian terms for the womb, we likewise encounter signs of vagueness with regard to anatomical knowledge, as well as an extensive metaphorical conceptualisation that draws on the metaphors THE BODY IS A HOUSE and THE BODY IS A LANDSCAPE.[35] Many of the terms for the uterus express the notion of interiority, portraying the womb as a sheltered internal space, as seen in the Sumerian terms šà "inside; belly; heart" (Akk. *libbu*) and šà-tùr "stall (of the) inside" (borrowed into Akkadian as *šassūru*), both metaphorically denoting the uterus. The image of the womb as a house is contained in the element tùr meaning "cow pen/animal stall."[36] The archaic form

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[34] Cf. Leick, *Sex and Eroticism*, 120f., 191; G. Leick, "The Erotisation of Landscape in Mesopotamian Literature," in *Landscapes. Territories, Frontiers and Horizons in the Ancient Near East*. Part III. *Landscapes in Ideology, Religion Literature and Art*, ed. L. Milano et al. (Padova: Sargon srl, 2000), 79–81; S. Panayotov, "Ritual for a Flourishing Bordello," 293, line 30; Y. Sefati, *Love Songs in Sumerian Literature*, 86–94 and *passim* for images like the "twittering birds" alluding to moans and cries of sexual excitement, and the imagery of wetness, beer, date syrup and well-watered places such as swamps and lush gardens alluding to the fluids produced during coitus.

[35] For the Sumerian and Akkadian terms for the womb see also U. Steinert, "Uterus," in *Reallexikon der Assyriologie und Vorderasiatischen Archäologie* 14, ed. M. P. Streck (Berlin/New York: de Gruyter, 2016), 513f. §1. The ovaries and their function seem to have been unknown in Mesopotamia, and no Sumerian or Akkadian term has been successfully identified as referring to the ovaries as a separate anatomical structure (see also T. Frymer-Kensky, *In the Wake of the Goddesses* (New York: The Free Press, 1992), 48). Despite the existence of multiple terms for the amniotic sac, placenta and afterbirth, they tend to overlap in meaning, and the placenta sometimes seems to have been regarded as a part of the womb. Thus, Akkadian *silītu* "amnion; afterbirth; membrane" can metonymically stand for the womb, and the same logographic sign can be read either as Sumerian arḫuš "womb" or ùš "afterbirth, amniotic sac." See M. Stol, *Birth in Babylonia and the Bible: its Mediterranean Setting* (Groningen: Styx/Brill, 2000), 144f.; A. Zgoll, *Die Kunst des Betens* (Münster: Ugarit-Verlag, 2003), 169f., 185ff., 4: 19'.

[36] For šà note in particular the expressions a šà-ga ri "to inseminate" (lit. "to pour water/semen into the womb") and a šà-ga šu—ti "to conceive" (lit. "to receive water/semen in the womb"), as well as the complex cuneiform sign for Sumerian peš$_4$ "to be pregnant," which is a combination of the signs ŠÀ "belly" and the sign A "water; semen." Interiority

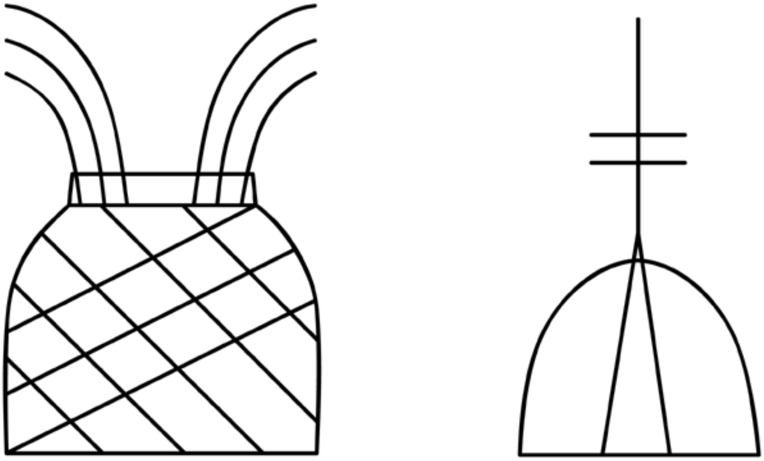

FIGURE 9.2 *The signs* TUR$_5$(TU) *and* TÙR *in the archaic script* (*after A. Falkenstein 1936, no. 213 and 239*).

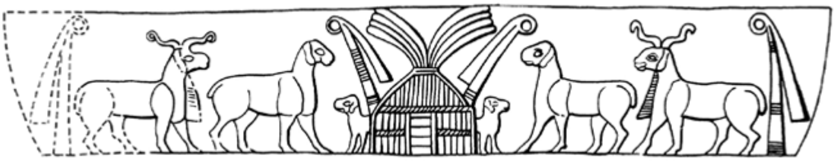

FIGURE 9.3 *Design of a stone trough from Uruk* (*P. P. Delougaz 1968, 187 Fig. 5*).

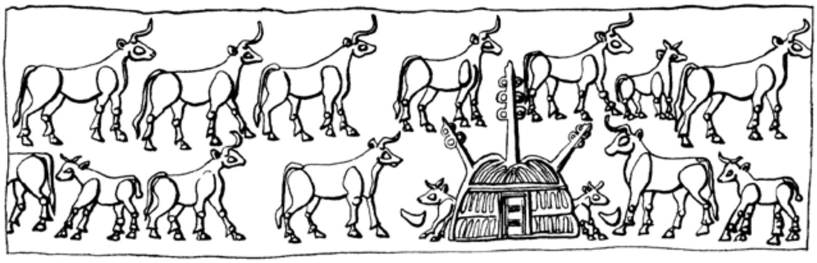

FIGURE 9.4 *Cylinder seal from Khafajah* (*Sîn Temple; P. P. Delougaz 1968, 187 Fig. 4*).

for the cuneiform signs TÙR and TUR$_5$/TU (both used to write the word šà-tùr "uterus") depicts a reed hut, which bears resemblance to representations in

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is also evident in the metonymic use of Akkadian terms denoting the inside of the body or the belly for the womb, such as *libbu* "inside; belly; heart" (cf. *ša libbīša* "fetus," lit. "that of her belly"), *qerbītu* "inside," and *karšu* "stomach, belly," beside the landscape metaphor found in *rubṣu* "lair, den; womb."

early Mesopotamian art of huts situated in animal pens. Because young animals (sheep, cattle) are shown emerging from these huts, they have been interpreted as birthing huts for pregnant ewes and cows.[37]

The Sumerians therefore described the womb as the organ of birth, imagined in terms of a shelter and internal space, by drawing on an analogy from animal husbandry. The link between human and animal reproduction is not only expressed on the level of the cuneiform script, but also in the imagery of birth, found in texts and visual arts. It is hinted at by the polyvalence of the sign TU, which can be read tur$_5$ "stall" or tu(d) "to give birth," as well as in the writing of the name of the birth goddess Nin-tùr(tu) "lady birth hut" (also ^{d}tur$_5$ "divine birth hut"), one of many female deities also known by the designation "mother goddess," who played crucial roles in the creation of man recounted in myths, who were regarded as responsible for the fertility and reproduction of humans and animals, and who were epitomized by the uterus, the organ of birth *per se*.[38] We can see this complex of ideas expressed already in a stamp seal dating to the 5th or 4th millennium BCE (Fig. 9.5) depicting a woman in a squatting posture suggestive of delivery, placed in a reed hut similar to those in Figs. 9.3 and 9.4. Notably, the woman's head bears no facial features and appears to resemble the shape of the archaic cuneiform sign ÁB ("cow"), which depicts a schematic cow's head (cf. below section D). One of the woman's hands rests on or points to her belly. Outside the hut, a couple of animals (ram/ewe?) are portrayed, and the smaller, female animal is attached to the hut with a rope. Bearing in mind the metaphoric association of the womb with a (birth) hut or animal stall, it is possible to interpret the (birth) hut on the seal not only as a place for delivery, but at the same time as a representation of the uterus, the birth-giving organ. Seen in this light, the compartment at the top of the hut (closed off by a horizontal line), which contains an object that resembles an egg, could be understood as a depiction of the gravid uterus, with the amniotic

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[37] See P. P. Delougaz, "Animals Emerging from a Hut," *JNES* 27 (1968): 184–97.

[38] For Nintur and the birth / mother goddesses see T. Jacobsen, "Notes on Nintur," *OrNS* 42 (1973): 274–98; M. Krebernik "Muttergöttin. A. I. In Mesopotamien," in *RlA* 8, ed. D. O. Edzard (Berlin: de Gruyter, 1993–1997), 502–16; A. Cavigneaux and M. Krebernik, "Nin-tur," in *RlA* 9, ed. D. O. Edzard (Berlin: de Gruyter, 1998–2001), 507–08; Stol, *Birth in Babylonia and the Bible*, 73–84 and *passim*; J. M. Asher-Greve and J. Goodnick Westenholz, *Goddesses in Context: Divine Powers, Roles, Relationships and Gender in Mesopotamian Textual and Visual Sources* (Fribourg: Academic Press, 2013); T. Rodin, *The World of the Sumerian Mother Goddess: An Interpretation of Her Myths* (Uppsala: Acta Universitatis Upsaliensis, 2014).

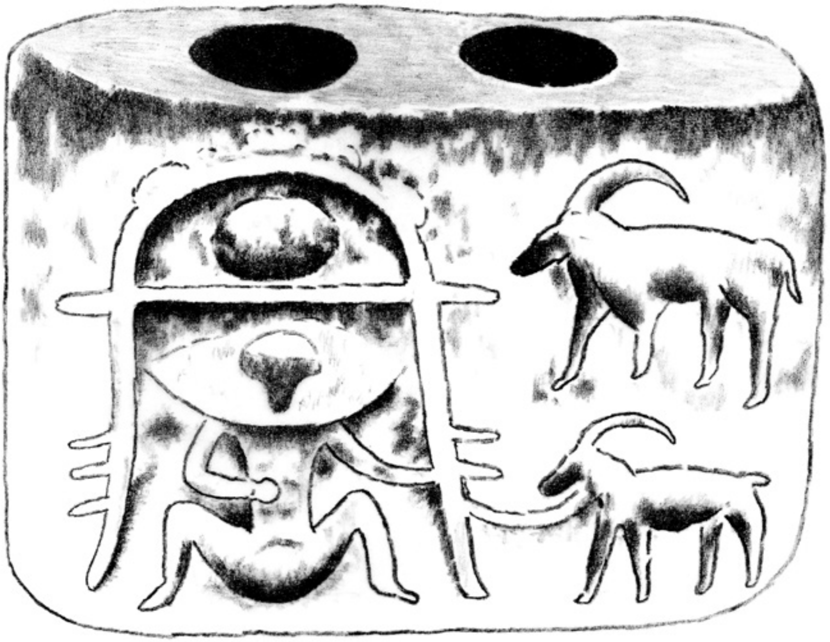

FIGURE 9.5 *Stamp seal, ca. 5th/4th millennium* BCE. *After B. Buchanan and P. R. S. Moorey 1984, pl. 4 no. 54. Illustration Y. Lindner.*

sac surrounding the fetus.[39] The rounded top of the hut may be read as the outline of a pregnant woman's bulging belly.

To continue this line of thinking even further, in Sumerian and Akkadian texts the woman giving birth is associated with the cow. In my view, this association stems from cultural experiences of similar complications occurring in women in labor and in cows with birthing difficulties.[40] The equation of woman and cow during birth encountered in birth incantations may have led to the choice of a schematic cow's uterus as the symbol of the Mesopotamian mother goddess(es). This so-called omega symbol is depicted, for instance, twice on a terracotta plaque flanking the figure of a breast-feeding goddess with babies and two premature fetuses crouching beside her (Fig. 9.6). The

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[39] For a discussion of related images of childbirth from Mesopotamia see L. Battini, "Les images de la naissance en Mésopotamie," in *Médecine et médecins au Proche-Orient ancien.* Actes du colloque international organisé à Lyon, 8–9 novembre 2002, ed. L. Battini and P. Villard (Oxford: John and Erica Hedges Ltd., 2006), 1–37.

[40] Cf. Stol, *Birth in Babylonia*, 72f. for a Sumerian veterinarian whose seal depicts delivery chains for cows, a tool still used by today's veterinarians to manage difficult deliveries.

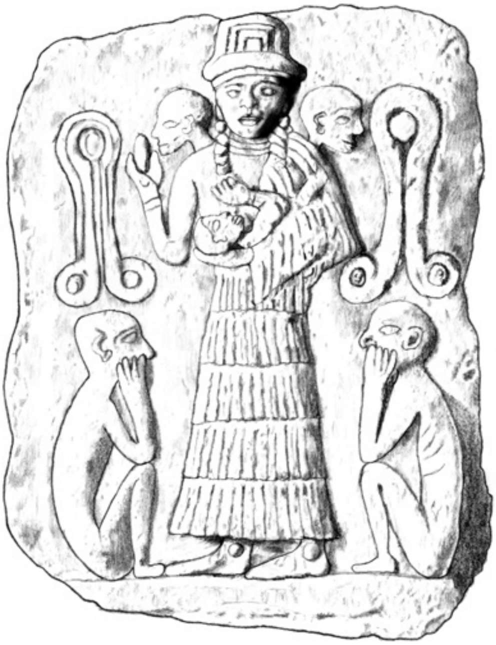

FIGURE 9.6
AO 12442. Clay plaque (Louvre) from the Old Babylonian period (1st half of the 2nd millennium BCE*); after E. D. van Buren 1933–1934, 167 fig. 2. Drawing Y. Lindner/U. Steinert.*

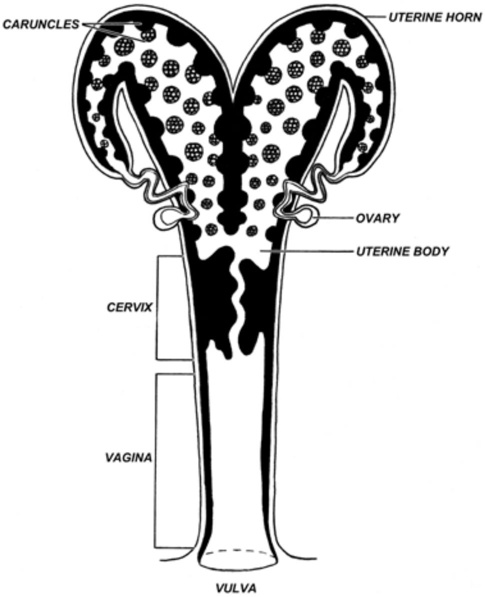

FIGURE 9.7
Dorsal view of the cow's reproductive system; after R. Cooke, A. Villarroel and C. Estill 2007, 6 fig. 2.3 (A), http://oregonstate.edu/dept/eoarc/sites/default/files/641.pdf (accessed September 29, 2017). Illustration Y. Lindner.

symbol bears strong resemblance to the reproductive tract of a cow, characterized by a uterus composed of two horns (Fig. 9.7), even more so when the omega symbol is seen turned upside down, as is the more usual way of depicting the symbol in Mesopotamian art.[41] The notion of a double-chambered cow uterus may likewise be expressed in the Sumerian designation é-mìn "twin house" for the female genitals.

The metaphor THE BODY IS A HOUSE is also apparent in tropes of birth, found in Sumerian and Akkadian birth incantations, e.g., in the imagery of closed doors expressing difficult birth (Stol 2000, 11, 65, 130; Couto-Ferreira 2014, 310). It may also be hinted at in a Sumerian birth incantation from the pre-Sargonic period (ca. 2500 BCE), where the goddess Ningirima acting as midwife brings out gender-specific tools from the dag-agrun "cella; bedchamber," which metaphorically represent the baby (either male or female) being delivered from the womb.[42]

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[41] For the terracotta plaque(s) of the mother/birth goddess with the omega symbol and crouching fetuses (stillbirths), see, e.g., E. D. van Buren, "A clay relief in the Iraq Museum," *AfO* 9 (1933–1934): 165–71; N. Wrede, *Uruk. Terrakotten I. Von der 'Ubaid- bis zur altbabylonischen Zeit* (Mainz: Philipp Von Zabern, 2003), 295ff.; Stol, *Birth in Babylonia*, 29f., 80f. The omega symbol was first interpreted as a uterus by H. Frankfort, "A Note on the Lady of Birth," *JNES* 3 (1944): 198f. on the basis of Egyptian parallels. These suggest that both in Egypt and Mesopotamia, the female reproductive system was sometimes understood by drawing on the knowledge of animal anatomy. See for discussion also U. Steinert, "Cows, Women and Wombs: Interrelations between Texts and Images from the Ancient Near East," in *Four Corners of the Earth: Studies in Iconography and Cultures of the Ancient Near East in Honour of F. A. M. Wiggermann*, ed. D. Kertai and O. Nieuwenhuyse (Münster: Ugarit Verlag, 2017), 205–45. Cf. the recent re-analysis by Asher-Greve and Goodnick Westenholz, *Goddesses in Context*, 246f. with n. 1179.

[42] For the text see M. Krebernik, *Die Beschwörungen aus Fara und Ebla. Untersuchungen zur ältesten keilschriftlichen Beschwörungsliteratur* (Hildesheim: Olms Verlag 1984), 36f. Nr. 6A–B; Cunningham, *Deliver Me From Evil. Mesopotamian incantations 2500–1500 BC* (Roma: Editrice Pontificio Istituto Biblico, 1997), 21, 33 Text 13; Rodin, *The World of the Sumerian Mother Goddess*, 197f.; N. Rudik, *Die Entwicklung der keilschriftlichen sumerischen Beschwörungsliteratur von den Anfängen bis zur Ur III-Zeit* (PhD dissertation, Friedrich-Schiller-Universität Jena, 2011), 321–26 FSB 57. Cf. the discussion of Sumerian agrun (É.NUN) as "bedchamber" or "cella" of temples in U. Steinert, "Der Schlaf in der altmesopotamischen Überlieferung," in *Von Göttern und Menschen. Beiträge zu Literatur und Geschichte des Alten Orients. Festschrift für Brigitte Groneberg*, ed. F. Weiershäuser, D. Shehata and K. V. Zand (Leiden: Brill (2010), 237–285, esp. 270f. Furthermore, Miguel Civil has pointed out that the metaphor of the womb as a house lies at the bottom of the Mesopotamian image of the prison, which is said "to give birth to an honest man," and whose divine warden is a goddess (M. Civil, "On Mesopotamian Jails and their Lady Warden," in *The Tablet and the Scroll. Near Eastern Studies in Honor of William W. Hallo*, ed.

As is noteworthy, the house metaphor in connection with female reproductive organs is also prominent in later Jewish traditions, where it receives further elaboration in anatomical terminology.[43] The Rabbis imagined female reproductive organs to have several compartments or chambers (as the uterus of some domestic animals), and compared it with a storehouse for the fetus.[44] Moreover, another term used in the Talmud, *maqor* “fountain” or “source” denotes the interior of the womb from which menstrual blood is discharged, which is mirrored in landscape metaphors encountered in Sumerian incantations for stopping hemorrhage during pregnancy or after delivery. These recitations are called by rubrics such as “incantations for sealing the source,” “incantations for sealing the source at the mouth” or “incantations for sealing a woman,” and display vivid imagery comparing the womb with a water source and the vulva with a mouth.[45]

M. E. Cohen, D. C. Snell and D. B. Weisberg (Bethesda: CDL Press, 1993), 78). This analogy between the womb/prison and a female warden can be further related to the fact that two Sumerian and Akkadian terms for the womb (arḫuš and *rēmu*) also have the metaphoric meaning “mercy, compassion.” Mercifulness was thus regarded as an integral attribute of female nature.

[43] For discussion, see C. Baker, *Rebuilding the House of Israel: Architectures of Gender in Jewish Antiquity* (Stanford: Stanford University Press, 2002), 34–76; C. Fonrobert, *Menstrual Purity: Rabbinic and Christian Reconstructions of Biblical Gender* (Stanford: Stanford University Press, 2000), 40–67. In the Jewish texts, “my house” refers to a man’s wife, and “entering the house” is a euphemistic expression for sexual intercourse from a male perspective. For example, in the Mishnah and Talmud, within the tractate Niddah (yNiddah 2:4, 50a; bNiddah 17b) discussing the status of blood originating from different parts of the female reproductive system (including vagina, womb and bladder), these parts are designated by the terms “front hall/vestibule,” “chamber/room,” and “upper chamber,” which the Mishnah describes as an analogy or metaphor (*mšl*) attributed to the Sages (mNiddah 2:5). For the body as a house in early modern Jewish medical writing see further H. King, “Introduction,” in *Blood, Sweat and Tears*, ed. M. Horstmanshoff, H. King, and C. Zittel (Leiden: Brill, 2012), 9f.; E. Lepicard, “An Alternative to the Cosmic and Mechanic Metaphors for the Human Body? The House Illustration in *Ma’aseh Tuviyah* (1708),” *Medical History* 52 (2008): 93–105.

[44] E.g., bNiddah 31a; bBerakot 61a.

[45] See for these incantations, I. L. Finkel, “The Crescent Fertile,” *AfO* 27 (1980): 37–52; J. Scurlock, “Baby-Snatching Demons, Restless Souls and the Danger of Childbirth: Medico-Magical Means of Dealing with Some of the Perils of Motherhood in Ancient Mesopotamia,” *Incognita* 2 (1991): 137f.; N. Rudik, *Die Entwicklung der keilschriftlichen sumerischen Beschwörungsliteratur*, 332–36. Note also *Genesis* 30.2, “a fountain sealed” designating the infertile womb.

A related metaphorical image, which refers to the anatomy of female reproductive organs in Mesopotamian sources, is that of a water conduit, tube or passageway, as is seen in the expression *rāṭ šassūri* "the runnel of the womb; birth canal(?)" in the *Tukulti-Ninurta Epic* in a passage that describes royal birth.[46] The word *rāṭu* refers to irrigation and drainage runnels, as well as to the tubes through which molten metals flow during casting, which suggests that casting too was associated with the processes of insemination and gestation. The technological models applied to physiological processes of procreation will be discussed in more details below. But this example shows that metaphorical anatomical terms provide links to bodily processes through analogies with objects and processes in the environment. Another example of the metaphor THE BODY IS A LANDSCAPE that draws on the image of the conduit is found in incantations to stop gynecological hemorrhage, wherein the woman's inner body is compared to a river or canal, which flows over or whose dam has broken, an analogy also encountered in connection with diarrhoea.[47] Whereas the idea of channels within the body is also current in many other medical traditions, most importantly in Greece and China, this metaphor in the Mesopotamian medical texts reflects a common-sense understanding of the body that is not part of an elaborate theoretical system, i.e., the use of river images is by and large restricted to Mesopotamian incantations.

According to metaphor theory, the image of the womb as a house (see above) can be viewed as an instantiation of the basic underlying conceptual metaphor THE BODY IS A CONTAINER. Indeed, container metaphors feature prominently in Mesopotamian texts and are used to conceptualize the womb and other internal organs, while broadening the anatomical terminology of external body parts.[48] The notion of the womb as a container is also widespread cross-culturally.[49] Within the Mesopotamian cultural context, we find this metaphor again on the interrelated levels of terms for body parts and of cuneiform script. On the level of terms and designations for body parts, the Sumerian word aĝarin, borrowed into Akkadian as *agarinnu*, can mean "womb" and "mother/creatrix" in literary texts and is equated with *ummu* "mother" in lexical lists, but its basic meanings denote containers used in production processes ("basin; crucible; mould") and their contents. Thus, aĝarin also designates "beer bread" (= sourdough) and the "fertile soil/clay" or "primordial generative matter" associated with brick making and with the creation of mankind.[50] In aĝarin, the womb is associated with the earth and the mythological domain of the abzu (subterranean fresh water), and it is understood as a generative organ, in which transformative processes of creation take place. On the other hand, these creative processes are expressed through analogies with crafts and technologies such as beer brewing and metallurgy.[51] While the semantic levels of aĝarin focus on the function of the womb, the representation of the womb through a waterskin (*nādu*, Sum. $^{\text{kuš}}$a-edin-lá) in a ritual against gynecological hemorrhage evokes also similarities in shape (i.e., the wide body and narrow neck).[52]

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[46] See W. G. Lambert, "Three Unpublished Fragments of the Tukulti-Ninurta Epic," *AfO* 18 (1957–1958): 50 Rm. 142 Col. Y 9; cf. B. R. Foster, *Before the Muses: An Anthology of Akkadian Literature*, 3rd edition (Bethesda: CDL Press, 2005), 301 i (= A obv.) 17′*: ina purussî bēl mātāti ina rāṭ šassūr ilī šipikšu ītešra* "By the decree of the lord of the lands his (Tukulti-Ninurta's) formation went smoothly in the *canal* of the divine womb." For discussion, see Steinert, "Fluids, Rivers, and Vessels," 13.

[47] See further U. Steinert, "K. 263+10934, A Tablet with Recipes against the Abnormal Flow of a Woman's Blood," *Sudhoffs Archiv* 96 (2012): 64–94; Steinert, "Fluids, Rivers, and Vessels," 1–23 and below.

[48] It is noteworthy that in Mesopotamia, house metaphors and the metaphor of the cow pen in particular seem to be primarily associated with the female body and women's reproductive system, while container metaphors are also found in other contexts describing internal physiological processes, e.g. in incantations dealing with digestive problems.

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[49] For Jewish, Greek and Roman parallels to the womb as a container, see C. Fonrobert, *Menstrual Purity*, 61ff.; King, *Hippocrates' Woman*, 34f.; Hanson, "Conception, Gestation, and the Origin of Female Nature," 36, 38f.; A. E. Hanson, "Uterine Amulets and Greek Uterine Medicine," *Medicina nei secoli Arte e Scienza* 7 (1995): 281–99. While in the Greco-Roman world, the womb is often represented as an upside-down jug or cupping vessel, in Talmudic and Rabbinic sources, it is compared with a container made of skin (bNiddah 31a) and a moneybag (Leviticus Rabbah 14: 4), see J. Preuss, *Biblical and Talmudic Medicine*, translated and edited by Dr. Fred Rosner (Northvale: Jason Aronson, 1993), 381ff.

[50] For aĝarin see *The Sumerian Dictionary of the University Museum of the University of Pennsylvania* Vol. 1, A/III, ed. A. Sjöberg (Philadelphia: University of Pennsylvania, 1998), 60f.; R. Borger, *Mesopotamisches Zeichenlexikon* (Münster: Ugarit-Verlag, 2004), 90, 92, 119; W. Sallaberger, Review of *Catalogue of cuneiform tablets in Birmingham City Museum* 2: *Neo-Sumerian texts from Umma and other sites*, by P. Watson, *OLZ* 89 (1994): 544; A. Cavigneaux and F. N. H. al-Rawi, "Textes Magiques de Tell Haddad (Textes de Tell Haddad II). Troisième partie," *ZA* 85 (1995): 186. Based on lexical equations and the use of synonyms such as bappir "beer bread (= sourdough)" in a hymn to the Sumerian goddess Ninkasi, describing the beer brewing process, Walther Sallaberger now interprets aĝarin as the fermenting, rising sourdough (rather than the liquid beer mash), which metaphorically denotes the swelling belly of the pregnant woman ("Bierbrauen in Versen: Eine neue Edition und Interpretation der Ninkasi-Hymne," in *Altorientalische Studien zu Ehren von Pascal Attinger: mu-ni u*$_4$ *ul-li*$_2$*-a-aš ĝa*$_2$*-ĝa*$_2$*-de*$_3$, ed. C. Mittermayer and S. Ecklin (Fribourg: Academic Press 2012), 311f.). The mythological connection of aĝarin as fertile soil with the creation of mankind from clay can be found, e.g., in the Sumerian myth *Enki and Ninmaḫ* 26–37 and in the Babylonian *Atramḫasīs Epic* I 249–60 (W. G. Lambert, *Babylonian Creation Myths* (Winona Lake: Eisenbrauns 2013), 336; W. G. Lambert and A. R. Millard, *Atra-ḫasīs: the Babylonian Story of the Flood* (Oxford: Clarendon, 1969), 60–62, with K. 3399+ obv. iii 1–14). The creation of humans by shaping clay, associated with Enki and the mother/birth goddess(es), is symbolized in *Atramḫasīs* by the birth brick, which was to be placed in the house in honor of the mother goddess when a woman gave birth, thus re-creating the first birth of humans (see Lambert and Millard, *Atra-ḫasīs*, 62–64 I 272–95). This metaphorical link is still active in a Late Babylonian scholarly commentary (ca. 400 BCE), in which a kiln-fired brick (*agurru*) can be read alternatively to mean "pregnant woman" (MUNUS.PEŠ$_4$) by means of philological hermeneutics

Turning to the level of the script, the container metaphor is also expressed through the cuneiform signs used to write the Sumerian words aĝarin and arhuš "womb." Both words are written with complex signs, each comprising a combination of two simple cuneiform signs. Aĝarin "womb" can for instance be written aĝarin$_3$(AMA.TÙN), a combination of signs standing for ama "mother" and tùn "bag; stomach." A way to write arḫuš "womb; mercy" (Akk. *rēmu*) is GÁ×MUNUS, which is comprised of the sign GÁ that has the basic meaning pisan "box; basket" with the sign munus "woman" written inside it (Fig. 9.8).[53]

(H. Hunger, *Spätbabylonische Texte aus Uruk* (SpTU). Teil I. (Berlin: Gebr. Mann, 1976), No. 27 rev. 21–22; Frahm, *Babylonian and Assyrian Text Commentaries*, 38). In the neighboring cultures such as Egypt, mankind was similarly fashioned by the god Khnum on his pottery wheel (see for a comparative discussion R. A. Simkins, "The Embodied World: Creation Metaphors in the Ancient Near East," *Biblical Theology Bulletin* 44 (2014): 40–53).

[51] For the womb-as-a-container metaphor in rituals and incantations see also Stol, *Birth in Babylonia*, 125; M. J. Geller and L. Vacin, "Fermenting Vat, Childbirth and Dreckapotheke: A School Incantatory-Medical Tablet," in *Four Corners of the Earth: Studies in Iconography and Cultures of the Ancient Near East in Honour of F. A. M. Wiggermann*, ed. D. Kertai and O. Nieuwenhuyse (Münster: Ugarit-Verlag, 2017), 83–94.

[52] See U. Steinert,"K. 263+10934," *Sudhoffs Archiv* 96 (2012): 68 l. 43, 70f. Note also the birth incantation K. 8210 i 10; N. Veldhuis, "The New Assyrian Compendium for a Woman in Childbirth," *ASJ* 11 (1989): 243 l.37, describing the pregnant woman ready to give birth as being "full like a waterskin" (*malât kīma nādi*).

[53] For arḫuš see P. Attinger, *Eléments de linguistique sumérienne: la construction de du$_{11}$/e/i "dire"* (Fribourg: Editions Universitaires, 1993), 440–42; M. Jaques, *Le vocabulaire des sentiments dans les textes sumériens: recherche sur le lexique sumérien et akkadien* (Münster: Ugarit-Verlag, 2006), 237–39, 495f. Sign variations and polysemous values of ARḪUŠ reveal that the container and house metaphors are deeply interconnected. Thus, the word "womb" (Akk. *rēmu*) can also be expressed through the sign combination É×ŠÀ, i.e., "house" plus "inside; belly" written inside it (Jaques, ibid., 495). A semantic relation between the womb, containers and inside space is evident from the fact that the sign ARḪUŠ can also be read as ama$_5$, which means "chamber (of a house), cella."

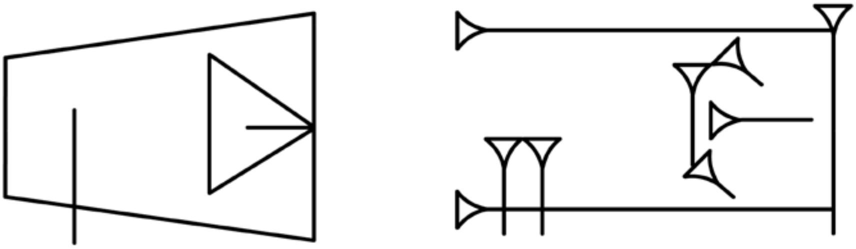

FIGURE 9.8 *The sign* ARḪUŠ *(3rd millennium and Neo-Assyrian form). After Labat 1988, No. 271.*

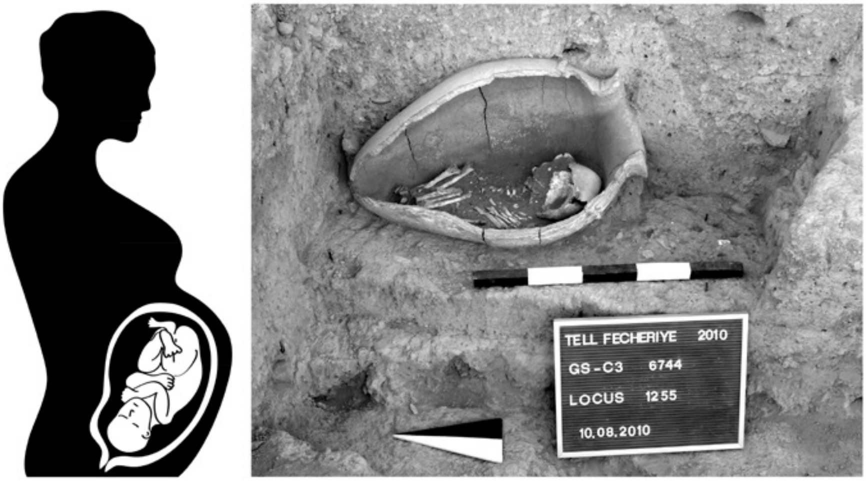

FIGURE 9.9 *The fetus in utero and an infant jar burial (Tell Fekheriye, ca. 12th/11th century* BCE*). The jar containing the baby was blocked with a brick (visible as a faint outline), which may symbolize the brick of birth. From: P. V. Bartl 2011, 8 Fig. 6. Illustration Y. Lindner.*

It is intriguing to find the image of the womb as a container also reflected in the cultural practice of infant burials in earthen pots, which is reminiscent of the position of the fetus in utero shortly before birth (Fig. 9.9).[54]

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[54] For infant pot burials in the Near East, see S. Kulemann-Ossen and M. Novák, "^{d}Kūbu und das „Kind im Topf": zur Symbolik von Topfbestattungen," *AoF* 27 (2000): 121–31; D. Ilan, "Mortuary Practices at Tel Dan in the Middle Bronze Age: a Reflection of Canaanite Society and Ideology," in *The Archaeology of Death in the Ancient Near East*, ed. S. Campbell and A. Green (Oxford: Oxbow Books, 1995), 117–37; E. Orelle, "Infant Jar Burials: A Ritual Associated with Early Agriculture?" in: *Babies Reborn. Infant/Child Burials in Pre- and*

The creative and productive potential inherent in Sumerian and Akkadian designations for the womb is, furthermore, expressed on a mythological level. Mesopotamian birth goddesses are not only responsible for creating humans and assisting at birth, but are associated also with crafts such as pottery and carpentry, and they often bear the title "Womb."[55]

4 The Physiology of Reproduction in Three Stages: Conception, Gestation, and Birth

4.1 *Conception*

4.1.1 Fluids and Semen: Agricultural Models of Conception

There are differing notions in Mesopotamian texts regarding conception and the contributions of man and woman, which are linked in different ways to the womb metaphors discussed in the previous section. The dominant ancient model of conception, which has been elicited in modern scholarly research from the Mesopotamian sources, is the image of the woman and her womb as a passive receptacle for the male semen. This image is, on the one hand, linked to the container metaphor, and, on the other hand, to cosmological associations of the womb with the earth that are grounded in an agricultural

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Protohistory, ed. K. Bacvarov (Oxford: Hadrian Book, 2008), 71–78. The container metaphor for the womb is also invoked in birth incantations, where birth is symbolized by smashing earthen vessels, as well as in other rituals for pregnant women, in which a pottery oven serves as a ritual object symbolizing the womb (see M. E. Couto-Ferreira, "The River, the Oven, the Garden: the Female Body and Fertility in a Late Babylonian Ritual Text," in *Approaching Rituals in Ancient Cultures*, ed. C. Ambos and L. Verderame (Pisa/Roma: Fabrizio Serra Editore, 2013), 105–10; Couto-Ferreira, "She will Give Birth Easily: Therapeutic Approaches to Childbirth in 1st Millennium BCE Cuneiform Sources," *Dynamis* 34 (2014): 311 and below section C).

[55] For the birth goddesses, see Stol, *Birth in Babylonia*, 74–83; J. Asher-Greve and J. Goodnick Westenholz, *Goddesses in Context*, 42f., 50f., 58f., 241–43; Rodin, *The World of the Sumerian Mother Goddess,* 90–109, 258–79 with previous literature. Note that "(Divine) Womb" is an epithet of the mother goddess Bēlet-ilī and the birth goddess Nintur (Krebernik, "Muttergöttin," 506f. §§ 3.31, 3.35; *Atramḫasīs* I 189–90, 194, 295, Lambert and Millard, *Atra-ḫasīs*, 54, 64; A. R. George and F. N. H. al-Rawi, "Tablets from the Sippar Library, VI. Atra-hasis," *RA* 58 (1996): 168 l. 68f.). There is further a group of goddesses called "wombs" (Sensur; *šassūrātu*) who assist the mother goddess in creating humans and giving birth, see Stol, *Birth in Babylonia*, 80f.; *Enki and Ninmaḫ* 26, 32, W. G. Lambert, *Babylonian Creation Myths*, 336, 503f.; *Atramḫasīs* I 251, 277–78 and K. 3399+ iii 9; Lambert and Millard, op. cit., 60, 62; B. Kouwenberg and J. C. Fincke, "A „new" Old Assyrian incantation," *JEOL* 44 (2012–2013): 141–46.

model of conception.[56] In this view, man is compared with a farmer or seeder plough sowing his “seed” into the womb, while the female role is regarded as “ancillary,” contributing nothing essential to procreation (i.e., man engenders, woman gives birth to the baby).[57]

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[56] For an overview of Mesopotamian sources on conception, pregnancy, birth and early childhood, see Scurlock, “Baby-Snatching Demons”; M. Stol, *Birth in Babylonia*, 1ff.; K. Volk, “Vom Dunkel in die Helligkeit: Schwangerschaft, Geburt und frühe Kindheit in Babylonien und Assyrien,” in *Naissance et petite enfance dans l'Antiquité*, ed. V. Dasen (Fribourg: Academic Press, 2004), 71–92; M. Stol, “Embryology in Babylonia and the Bible,” in *Imagining the Fetus: The Unborn in Myth, Religion, and Culture*, ed. J. M. Law and V. R. Sasson (Oxford: Oxford University Press, 2009), 137–56; B. Böck, “Medicinal plants and medicaments used for conceptions, abortion, and fertility control in ancient Babylonia,” *Journal Asiatique* 301 (2013): 27–52; M. E. Couto-Ferreira, “In the Womb: Embryological Ideas in Mesopotamian Cuneiform Texts,” in *Embryology in Jewish and Ancient Middle Eastern Sources*, ed. S. S. Kottek. Korot—The Israel Journal of the History of Medicine and Science 23 (2017): 47–72. The analogy between the female body and mother Earth as well as theories of conception based on agricultural models (paradigm of the farmer) are wide-spread also in the Mediterranean world, see Hanson, “Conception, Gestation and the Origin of Female Nature,” 36–41; Simkins, “The Embodied World.”

[57] See R. D. Biggs, “Conception, Contraception, and Abortion in Ancient Mesopotamia,” in *Wisdom, Gods and Literature. Studies in Assyriology in Honour of W. G. Lambert*, ed. A. R. George and I. L. Finkel (Winona Lake: Eisenbrauns, 2000), 1–13; Stol, *Birth in Babylonia*, 1ff.; especially Simkins, “The Embodied World,” 49ff. with an analysis of the underlying gender-based dichotomy, correlating male-female with outside-inside, public-home and male control of female fertility, which seems to apply more to Greek and Biblical/ Jewish societies and their views of gender relations than to the Mesopotamian. The agricultural model of human procreation is based on an analogy with plants: Sumerian a “water; semen” and Akkadian *zēru* “seed” also mean “son; offspring,” relating to images of insemination and ejaculation in terms of planting and irrigation. The metaphors recur in Sumerian and Babylonian creation myths like *The Song of the Hoe* 1–27, in which the god Enlil creates the hoe to separate heaven and earth, so that the “seed of mankind” could sprout from it (see ETCSL 5.5.4, http://etcsl.orinst.ox.ac.uk/cgi-bin/etcsl.cgi?text=t.5.5.4#; Steinert, *Aspekte des Menschseins*, 49); see further *The Theogony of Dunnu*, where the creation of the gods starts with the Earth creating children with a male partner by employing the plough (W. G. Lambert, *Babylonian Creation Myths*, 387–95, esp. 392: 1–7). In Mesopotamian myths, the image of the creator as ‘irrigator’ (via his sperm) is more connected to the god Enki. See *Enki and the World Order* 250–66 (ETCSL 1.1.3, http://etcsl.orinst.ox.ac.uk/cgi-bin/etcsl.cgi?text=t.1.1.3#); Leick, *Sex and Eroticism*, 21–26, 30–35, 48–54 for discussion). Ploughing is also an expression for sexual intercourse in the Sumerian and Akkadian love poetry (W. G. Lambert, “Devotion: The Language of Religion and Love,” in *Figurative Language in the Ancient Near East*, ed. M. Mindlin, M. J. Geller and J. E. Wansbrough (London: School of Oriental and African Studies, 1987, 28–30; Leick, *Sex and Eroticism*, 75–77).

Gynecological texts like BAM 240 (from Assur, ca. 7th century BCE) describe the 'mechanics' of the womb necessary for a successful conception according to the container model, which focuses on openness and closure. The womb has to "receive" (*maḫāru*) the male semen and retain it (*kalû*), a notion also found in Hippocratic and other Greco-Roman medical texts. Impediments to conception envisaged by Mesopotamian scholars within this 'mechanistic' image of the womb are either a blockage or deformation: the womb can be "twisted" (*zīru*) and "knotted," instead of open and straight.[58] An alternative explanation for the failure to conceive was divine wrath, especially when conception did not occur even though the woman received the semen, and in cases where failure to conceive did not seem to be due to a blockage or an anatomical problem:[59]

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[58] For the "womb that is twisted" (ARHUŠ *ša zīri*), see H. Hunger, SpTU 1, No. 43 rev. 31. For the "knotted" (*kuṣṣuru*) womb, see Lambert and Millard, *Atra-ḫasīs*, 108ff. K. 3399+ rev. iv 51, iv 61. It is interesting to note that the unique text SpTU 1, No. 43 (from the Achaemenid period, ca. 5th/4th century BCE) groups the twisted womb (mentioned beside infertility, *lā ālidūti*) together with other ailments of the lower body, which are said to originate ultimately in the kidneys. The unusual theoretical framework of this text reflects an attempt to systematize the increasing complexity of physiological concepts in the Late Babylonian period. For a discussion of this text see F. Köcher, "Spätbabylonische medizinische Texte aus Uruk," in *Medizinische Diagnostik in Geschichte und Gegenwart. Festschrift für Heinz Goerke zum sechzigsten Geburtstag*, ed. C. Habrich et al. (München: Werner Fritsch, 1978), 22–25; M. J. Geller, "West Meets East: Early Greek and Babylonian Diagnosis," *AfO* 48/49 (2001–2002): 61f.; N. P. Heeßel, "Ein später diagnostischer Text," in *Texte zur Heilkunde*, Texte aus der Umwelt des Alten Textaments, Neue Folge Band 5, ed. B. Janowski and D. Schwemer (Gütersloh: Gütersloher Verlagshaus, 2010), 30f.; M. J. Geller, *Melothesia in Babylonia: Medicine, Magic, and Astrology in the Ancient Near East* (Berlin: de Gruyter, 2014), 3–26; U. Steinert, "Körperwissen, Tradition und Innovation," 230–42.

[59] A prominent notion in Mesopotamian wisdom is that especially the personal god of the patrinlineal household punishes misdeeds, sins and neglect of religious obligations by causing female barrenness and denying offspring (see Steinert, *Aspekte des Menschseins*, 238, 398f.). Furthermore, the deities responsible for human fertility could also cut short human fecundity if they pleased, in order to prevent overpopulation. Last but not least, in the tradition of physiognomic omens certain traits and features of the male and female body were believed to signify future offspring, (in)fertility, the ability to conceive and bring pregnancies to term. Such predictions were derived, e.g., from the shape of the penis or the woman's breasts and lower belly (see B. Böck, *Die babylonisch-assyrische Morphoskopie* (Wien: Institut für Orientalistik der Univ. Wien, 2000), 122ff. ll. 84–89; 160 ll. 158–66, 168–72; 164f. ll. 187–96a; cf. A. Berlejung, "Menschenbilder und Körperkonzepte in altorientalischen Gesellschaften im 2. und 1. Jt. v. Chr. Ein Beitrag zur antiken Körpergeschichte," in *Menschenbilder und Körperkonzepte im Alten Israel, in Ägypten und im Alten Orient*, ed. A. Berlejung, J. Dietrich and J. F. Quack (Tübingen: Mohr Siebeck,

BAM 240: 69′–71′ (cf. Böck 2013, 30f.; Scurlock 2014, 613, 616)

DIŠ MUNUS *qer-bi-sa ri-ḫu-tú im-ḫur-ma* IBILA ⸢*mu-tir*$^?$⸣ *gi-mil-li* T[UKU$^?$]

DIŠ MUNUS *qer-bi-sa ri-ḫu-tú im-ḫur-ma* NU Ù.TU *šib-sat* DINGIR NU DU$_{10}$-*ub* [ŠÀ-*bi*]

DIŠ MUNUS ⸢*ina* ŠÀ⸣ TUKU-*at ka-la-a la i-le-ʾe-e ana* MUNUS *nu-uḫ-ḫi* …

If a woman's womb has received the semen, she will h[ave] a male child, an ⸢'avenger.'⸣[60]
If a woman's womb has received the semen, but she does not bear: anger of the god, unhappi[ness].
If a woman has received (semen) in (her) belly, (but) cannot retain it (inside), to calm the woman: …
(Recipe follows)

A few gynecological recipes for promoting conception are explicitly described for the purpose of "opening up and getting pregnant" (*šá* BAD *u* PEŠ$_4$).[61] These treatments often consist of vaginal suppositories:

2012), 367–97). Furthermore, both physiognomic and diagnostic texts make predictions about the sex of the future offspring. In Tablet 36 of the Diagnostic Handbook they are derived from body characteristics of the pregnant woman (see for discussion Stol, *Birth in Babylonia*, 193–202), while the physiognomic omens derive these predictions from the male body. Note also that a few hemerological texts include recommendations for the timing of intercourse, by suggesting specific days of the year when conception was believed to be guaranteed, see A. Livingstone, *Hemerologies of Assyrian and Babylonian Scholars* (Bethesda: CDL Press, 2013), 166: 46f.; 179 obv. iv 25-rev. i 3; 188f. rev. iii 42–44.

[60] The reading of this line suggested here fits the sign traces on the tablet and in F. Köcher's copy of BAM 240 (the tablet has been collated). A differing rendering of the apodosis is given in Scurlock, *Sourcebook*, 613, reading DUMU.NITA$_2$ [Ù.TU] *gi-mil-li* [DINGIR] "(If a woman's womb receives the semen) and [she gives birth to] a son, [divine] favour." For *mutīr gimilli*, which can mean "avenger" or "one who returns kindness," cf. CAD G, 74f. sub 2; CAD M/2, 299; CAD T, 272f. sub 10b. The expression is attested primarily in reference to gods (e.g. Marduk) and kings, but it is also used in personal names, alluding to the idea that the birth of the name bearer was regarded as an act of kindness, returned by the gods for the parents' piety. In the present context, the apodosis "she will get a son, one who returns kindness," could also refer to desirable character traits of the future offspring.

[61] See BM 42587+: 27 (Late Babylonian), cf. I. L. Finkel, "On Late Babylonian Medical Training," in *Wisdom, Gods and Literature. Studies in Assyriology in Honour of W. G. Lambert,* ed.

> If a woman does not get pregnant, to enable her to get pregnant: you mix four$^{\text{sic!}}$ ingredients—*kukru*-aromatic, (an amount of) four (pieces of ?) bread, half a shekel of juniper, one shekel of fenugreek, one shekel of 'stinking' sesame, one shekel of almonds—with fatty material from the opening of a vat. You form an 'acorn' (from these ingredients), you insert it into her womb. She will open up and become pregnant, and moreover she will repeatedly discharge (her) fluids." **(BM 42313+: 33–36 // BM 42333+ obv. 5–11, Finkel 2000, 171f. Text 17; Böck 2013, 32)**

The expected outcome of the treatment (i.e., opening-up and the flowing of fluids) corresponds with the underlying container metaphor of the womb. The woman's womb will open up and emit fluids like a container for liquids, which is alluded to by the therapeutic agent "fatty material from the opening of a vat." The last phrase "she will discharge (her) fluids" (ŠUB.ŠUB, *nadû* Gtn-stem) has been understood as a reference to the loss of amniotic fluid after the envisaged successful conception, and the word A.MEŠ "fluids" (lit. "water") can indeed refer to the amniotic fluid in some gynecological texts.[62] But the same word can denote different vaginal discharges depending on the context. For this reason, an alternative interpretation of the fluids in the cited text (i.e., as a reference to female fluids representing the female contribution to conception analogous to the male semen) is suggested here. This view is further supported by the imagery of Akkadian birth incantations from the Old Babylonian period (ca. 1st half of the 2nd millennium BCE), describing conception through a cosmological analogy, as the mingling of fluids (*mû*), namely of the primordial waters:

A. R. George and I. L. Finkel (Winona Lake: Eisenbrauns, 2000), 169 (reading ÚŠ instead of BAD). For medicinal drugs to promote fertility and conception, see also Böck, "Medicinal plants and medicaments,“ 29–36; Böck, *The Healing Goddess Gula*, 154.

[62] BM 42333+ obv. 11 reads: BAD-*ma ir-ri u* A.MEŠ ŠUB.ŠUB-*ma*. For A.MEŠ (*mû*) designating "amniotic fluid" and other vaginal discharges, see Steinert, "Fluids, Rivers, and Vessels," 4–24. Scurlock and Andersen propose a different reading of the phrase suggesting that A.MEŠ "water" always refers to amniotic fluid, whereas female semen is referred to by the same word as the male semen, *riḫûtu* (J. Scurlock and B. R. Andersen, *Diagnoses*, 268 with note 45). Yet, this differentiation is more ambiguous than clear, because *riḫûtu* "semen" can be written with the same logogram as "water," A.(MEŠ), see CAD R, 341ff. for references. Thus, in the present text a.meš could be read either as *mû* or *riḫûtu*, and the understanding of the nature of female secretions during intercourse may have been ambiguous as well.

YOS 11, 86[63]
1 *i-na me-e* ⸢*na*⸣*-a-ki-im*
2 *ib-ba-ni e-ṣé-em-tum*
3 *i-na ši-i-ir* [*ši*]*-ir-ḫa-nim*
4 *ib-ba-ni* [*l*]*i-il-li-du-um*
5 *i-na me-e a-ab-ba ša-am-ru-tim*
6 *pa-al-ḫu-ú-tim*
7 *i-na me-e ti-a-am-tim ru-qú-ú-tim*
8 *a-*⸢*šar*⸣ *ṣe-eḫ-ru-um ku-us-sà-a / i-da-a-šu*
9 *qé-er-bi-is-sú la-a uš-na-wa-ru*
10 *i-in ša-am-ši-im*

From the waters of intercourse
the bone was created,
from the flesh of the muscles
the baby was created,
in the turbulent, terrifying waters of the ocean,
in the distant waters of the sea,
the place where the little one's arms are bound,
(the place) whose interior the eye of the sun does not illuminate.

The womb where the baby is created is imagined as a dark and aquatic place. The "waters of intercourse" (*mê nâkim*) refer to fluids emitted by both man and woman during sexual intercourse. These fluids are parallel with the waters of two kinds of oceans (*ajabba* and *tiāmtum*), which are associated with the amniotic fluid in which the fetus dwells. One Old Babylonian manuscript with this birth incantation uses the terms *apsû* and *tiāmtum* instead, designating the primeval male subterranean fresh waters and the female salt water ocean, from whose union and mingling all creation started, as is actually described in Tablet I 1–5 of the Babylonian *Epic of Creation* (*Enūma Eliš*, Lambert 2013,

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[63] J. van Dijk, "Une incantation accompagnant la naissance de l'homme," *OrNS 42* (1973): 502–07; Foster, *Before the Muses*, 171f.; Scurlock, *Sourcebook*, 593f.; N. Veldhuis, "The Poetry of Magic," in *Mesopotamian Magic. Textual, Historical, and Interpretative Perspectives*, ed. T. Abusch and K. van der Toorn (Groningen: Brill, 1999), 39–41; N. Wasserman, *Akkadian Magical Literature of the Third and Second Millennium* (forthcoming); U. Steinert, *Women's Healthcare in Ancient Mesopotamia: An Edition of the Textual Sources* (Berlin/Boston: de Gruyter, in preparation).

50f.).[64] This analogy suggests that male and female fluids were imagined to mingle and create the baby's bone(s), while all other structures of the baby's body stem from the flesh and muscles (of the mother). The incantation describes the woman not as a mere recipient of male semen, but as an equal or even as the main actor in the baby's creation.[65] The complimentary nature of the substances bone and flesh/muscles, which are constitutive of the baby's body, involve a colour symbolism well known in the ethnographic record, and can be understood alternatively as a reference to male and female contributions to procreation. Bones (and white body substances) are often associated with the male semen, flesh (or red/dark body substances) with female blood.[66]

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[64] See also F. Rochberg, "A Short History of the Waters of the Firmament," in *From the Banks of the Euphrates. Studies in Honor of Alice Louise Slotsky*, ed. M. Ross (Winona Lake: Eisenbrauns, 2008), 231f. The duplicate MS 3067 (A. R. George, *Mesopotamian Incantations and Related Texts in the Schøyen Collection* (Bethesda: CDL Press, 2016), 140f. No. 28a obv. 1ff. reads: 1) ⸢*i*⸣-[*na me*]-⸢*e*⸣ *na-ki-im ib*-[*ba-ni*] (*e-ṣe-em-tum*) 2) *i-na* ⸢*me-e*⸣ ⸢*ap-sí-im*⸣ *ru-qú-t*[*im*] 3) *i-na me-e a-a-bi ti-me-tim ra-a*[*p-ša-tim*] 4) *a-ša-ar ma-am-ma-an la -du-*[*ú*] 5) *qé-re-eb-ša* … "From the ⸢waters⸣ of intercourse (the bone) was cre[ated], in the distant waters of the *apsû,* in the waters of the ocean, the wi[de] sea, a place whose interior nobody knows …"

[65] This is even more clearly phrased in a third version of the incantation to be published by the author (BM 115745, for a transliteration see Sources of Early Akkadian Literature (SEAL text 5.1.3.1, http://www.seal.uni-leipzig.de/)), which begins: 1) [*ina m*]*e-e na-ki*!(di)-*im* 2) ⸢*ib*⸣-*ba-ni e-ṣe-em-tum* 3) *ši-ru-ú ši-ir-ḫa-*⸢*nu*⸣-*ú* 4) *ib-nu li-li-da-am* 5) *i-na me-e a-a-ba ša-am-*⸢*ru*⸣-*tim* 6) *ša-ru-uḫ-tim* 7) *i-na me-e an-za-nu-zi ru-qú-tim* 8) *a-ša-ar ši-*⸢*er-ru*⸣-*um* 9) *ku-us-sà i-da-šu* "[From the wa]ters of intercourse the bone was created; flesh (and) muscles created the child—in the violent, magnificent waters of the ocean, in the distant waters of the subterranean ocean, the place where the baby's arms are bound, its eyes covered." For BM 115745 and the parallels see also N. Wasserman, *Akkadian Magical Literature*; U. Steinert, *Women's Healthcare in Ancient Mesopotamia.*

[66] This view has been suggested in Steinert, *Aspekte des Menschseins*, 129–31. Note that *šer'ānu* "muscles" is listed as a word for *māru* "child; son" in the lexical list *malku* = *šarru* I 157 (I. Hrůša, *Die akkadische Synonymenliste malku* = *šarru*, 40, 311). The words for flesh and blood can likewise stand for "family" and "kinship" (blood relation), see CAD Š/3, 114 s.v. *šīru* lex. sect. There is one further term, *lipištu*, designating a fleshy body substance (or a fluid similar to blood or semen), which is sometimes used in contrast to *eṣemtu* "bone." The term can also mean "offspring" and refer to an idea of noble descent and lineage that occurs especially in Old Babylonian texts from Mari beside *dāmu* "blood" (J.-M. Durand, "La divination par les oiseaux," *Mari: Annales de Recherches Interdisciplinaires* 8 (1997): 274 n. 6; J.-M. Durand, "Remarques sur le vocabulaire de quelques parties du corps," in *Médecine et médecins au Proche-Orient ancien*. Actes du colloque international organisé à Lyon, 8–9 novembre 2002, ed. L. Battini and P. Villard (Oxford: John and Erica Hedges Ltd., 2006), 65–71). The word *lipištu* probably derives from Sumerian lipiš "inner body; heart"

Furthermore, white and red body substances are mentioned as components for the creation of the first human being in the Babylonian myths *Atramḫasīs* and *Enūma Eliš*.[67]

As a consequence of the discussion in YOS 11, 86, it can be suggested that the "fluids of intercourse," based on the experience of secretions emitted during sexual arousal, were metaphorically associated with semen, and that both man and woman were thought to produce and contribute semen to conception, a belief found in many ancient cultures (e.g., Greco-Roman, Jewish traditions).[68] The overlap between the concepts water/fluid and semen stems from the semantic ambiguity of the Sumerian terminology, but also from existing analogies between insemination and irrigation/flooding expressed in mythology.

Interestingly, in a few cuneiform texts, women are said to produce "semen" (*riḫûtu*) like men. Thus, a Neo-Assyrian medical text from Assur (BAM 205: 40f. // Biggs 1967, 68) contains the unfortunately damaged line: *lu* NITA *lu* MUNUS *su-u*ʾ*-us* (var. *su-u*ʾ*-su*) *ri-hu-su-nu* / *x-*ʾ*-uš* DU-*ak ina* K[ÀŠ].MEŠ-*šu-nu* [B]IR.[BIR …] "(If) either a man's or a woman's seminal fluids flow …, (and)

(written with the signs ÁB×ŠÀ "cow" and "inside"), and is further related to *lipiššatu*, a term for the female genitals. Cf. Paul Keyser's article in this volume about the metonymy of blood and descent.

[67] In *Atramhasīs* I 208–26, the gods create the first human prototype by having the mother goddess mix clay with the flesh and blood of a slain god (Lambert and Millard, *Atra-ḫasīs*, 58; George and al-Rawi, *RA* 58 (1996): 170f.: 91–112), whereas in *Enūma Eliš* VI 1–6, 31–34, Marduk constructs the first human by shaping bones and "knotting together" blood vessels (Lambert, *Babylonian Creation Myths*, 110–13). See also M. Stol, *Birth in Babylonia*, 11; N. Ziegler, "Les vaisseaux sanguins dans *Enûma Eliš* VI: 5," *Le Journal des Médecines Cunéiformes* 5 (2005): 4f.; Steinert, *Aspekte des Menschseins*, 50–57, 324f. for discussion. Cf. Böck, *The Healing Goddess Gula*, 24–30 for the tripartite body scheme of Mesopotamian medicine, which differentiates three systems: the bones, the "cord"-system (a net-like structure including blood vessels, nerves, sinews, the skin) and the "fleshes" (internal organs).

[68] The "fluids of intercourse" (*mê nâkim*) in the Old Babylonian birth incantation seem to be related to the expression A NAM.MUNUS.A, literally "waters of womanhood," in the sex omens of the series *šumma ālu* Tablet 104 (see CT 39, pl. 44: 3), where the male perspective of the omens suggests a focus on male semen (certain positions of the man in intercourse are predicted to result in "deficient" fluids). The phrase can be compared with *epēš* NAM.MUNUS.A "to have (fertile) intercourse" (CT 39, pl. 44: 4, cited CAD S, 293b, for discussion see Stol, *Birth in Babylonia*, 2f.; Volk, "Vom Dunkel ins Licht," 77 with n. 31. The term NAM.MUNUS.A seems to express the general notion of sexual "reproduction" from conception to birth.

they spill it while urinating."[69] Here, *riḫûtu* "semen" is complemented by a second word *su'su*/*suḫsu*, which is found elsewhere as a rare term for seminal fluids or genital secretions, and can also be used in the inclusive meaning "genitals, crotch."[70] In the context of the medical texts such as BAM 205, the seminal emissions described for both sexes are regarded as pathological and involuntary and may (especially with regard to women) refer to morbid genital discharges. Yet it is evident from this example that the Babylonian healers did not draw such clear-cut terminological distinctions as we do today, because they seem to have interpreted female discharges by means of an analogy with male seminal emissions.[71] Oblique reference to the same idea is evident from a 'List of Stars and Deities' from the Achaemenid or Seleucid city of Borsippa, where the constellation Erua is accorded the feminine title "Creatress of semen"

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[69] Scurlock and Andersen, *Diagnoses*, 89 sub 4.3 restore [*m*]*a-a'-da* DU-*ak* instead and translate: "(If) either a man's or a woman's semen flows copiously (and) they ⸢spill⸣ it when they urinate …"

[70] The meaning "genitals; crotch" is confirmed by lexical equations, see A. R. George, *Babylonian Divinatory Texts Chiefly in the Schøyen Collection* (Bethesda: CDL Press, 2013), 119 No. 19: 28, with discussion on p. 121. For the connection of *suḫsu* with genital secretions, see F. S. Reynolds, "A divine body: new joins in the Sippar Collection," in *Your Praise Is Sweet. A Memorial Volume for Jeremy Black from Students, Colleagues and Friends*, ed. H. D. Baker, E. Robson, and G. Zólyomi (London: British Institute for the Study of Iraq, 2010), 301f. commentary on BM 55484+ v 22' (*contra* CAD S, 349f.), where the seminal fluids (*suḫsu*) of a god are compared with salt. Similarly, a medical text from Sultantepe (STT 280 i 24 // LKA 144 rev. 24–25// BM 68033 rev. 10; T. Abusch and D. Schwemer, *Corpus of Mesopotamian Anti-Witchcraft Rituals. Volume One* (Leiden/Boston: Brill, 2011), 104 text 2.5 sub 3; Biggs, Šà.zi.ga, 66, line 24), mentions the emission of *suḫsu* caused by sorcery when "his semen flows (while he is walking, standing, lying down or urinating), like (that of) a woman *his genital secretion* is not pure" (*ri-ḫu-su* DU-*ak* GIN$_7$ MUNUS *su-u'-su/šú là e-el* (var. *l*[*a e*]-*lil*). In liver omens and an associated commentary, the word *suḫsu* acquires the meaning "jealousy" in connection with its use in an idiomatic phrase (U. Koch-Westenholz, *Babylonian Liver Omens. The Chapters Manzāzu, Padānu and Pān tākalti of the Babylonian Extispicy Series Mainly from Aššurbanipal's Library* (Copenhagen: Museum Tusculanum Press, 2000), 143, line 84; A. R. George, *Babylonian Divinatory Texts*, 121, 235 No. 33: 40, with discussion on p. 245.

[71] The word *riḫûtu* occurs also in the Assur Medical Catalogue (fragment A 7821 rev. 8, cf. CAD R, 342 sub 1a), in a cited incipit of a tablet within the gynecological corpus, which may be restored: DIŠ MUNUS GIN$_7$ *ri-ḫu-tú* GÌŠ T[A GAL$_4$.LA-*šá* DU-*ku*] "If (fluids) [flow from] a woman'[s vagina] like semen from the penis." Occasionally, a woman's genital discharges are interpreted as a sign that she "has begotten" or "sired" (i.e. is pregnant with) a child (*irḫi*), see the Diagnostic Handbook Tablet 36: 100–102, Stol, *Birth in Babylonia*, 200; cf. with differing interpretation, Scurlock, *Sourcebook*, 247f.

(*bānât riḫûti*).[72] Playing on similarities between the Akkadian name "Erua" and A.RI.A (logogram for *riḫûtu* "semen, offspring"), a couple of late period commentaries compared the close proximity of Erua (γ Comae Berenices) and Lion (Leo) constellations to the relationship portrayed in the teratological omen, "If a woman gives birth, and (the child) has a lion's head …" (*Šumma izbu* II, 1).[73]

Finally, an incantation against the disease *sagallu* affecting the lower extremities mentions the wish that the "seed" (NUMUN, Akk. *zēru*) of the illness (which is compared with a plant having a stem, roots and shoots) would dry out like the semen (*nīlu*) of an infertile woman. The term *nīlu* (lit. "flooding, watering") that appears in this text below is elsewhere attested as a synonym of *riḫûtu*:[74]

> **K.2453+ (CT 23, 5–14 rev. iii 18–19; E. Ebeling 1921, 140f.)**
> … *šur-šu-šú li-ta-ʾu-pu ki-sit-ta-šu li-bal*
> GIN$_7$ ŠE.SA.A *pi-ri-ʾ-šu* GIN$_7$ NUMUN *lab-ti lip-ṣu pa-nu-šu* :
> *ni-il-šu li-bal* GIN$_7$ *la a-lit-ti*
>
> … May its roots all wither, may its trunk dry out!
> Like roasted grain (be) its shoot, like seed of roasted grain may its face become pale!
> May its semen dry out like that of an infertile woman!

The existence of a complementary belief in female seed in Mesopotamia, beside the dominant model of procreation according to which only the man contributes semen in conception, can be supported by similar ideas in the Biblical and later Jewish traditions, the latter of which show signs of cross-cultural influences (especially from the Greco-Roman world), but are also indicative of the long-term stability of ancient ideas concerning conception and the female body.[75] While the Bible, like the Mesopotamian textual record, preserves only few traces of the notion of female seed, the Babylonian Talmud (bNiddah 31a) contains a tripartite constitutive model of the human being, differentiating different contributions of God, mother and father. All white substances (the child's bones, sinews, nails, marrow (brain) and the white of the eye) are said to derive from "his father who gives white seed" (*ʾbyw mzryʿ hlwbn*), whereas all red/dark structures, the skin, flesh, blood, hair and the black of the eye stem from "his mother who gives red seed" (*ʾmw mzryt ʾwdm*).[76] God gives the spirit and the soul, the beauty of the features, sight, hearing, speech, understanding and discernment, the ability to walk and to move hands and arms.[77] This tripartite scheme reminds us strongly of the idea found in the *Gilgamesh Epic* that a human being (in this case Gilgamesh) consists of three parts ("thirds"), with at least one part being of divine origin (stemming from the personal god of the child's father). Second, the three-component model recalls the Old Babylonian birth incantation YOS 11, 86, where the bone is created from the "fluids of intercourse" (semen), while the rest of the body is built up from the sinews/muscles and flesh of the mother (cf. Steinert 2012, 125–31).

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[72] $^{\text{mul}}$A.EDIN = *ba-na-at ri-ḫu-tum*, "Creator [or, more precisely, Creatress] of semen" (5R 46 no. 1: 46) in J. Z. Wee, "A Late Babylonian Astral Commentary on *Marduk's Address to the Demons*," *Journal of Near Eastern Studies* 75 (2016): 162–63, 166 (Note xx to Fig. 4).

[73] See discussion of LBAT 1601, obv. 3′–5′ // EBC, obv. 12–13 in J. Z. Wee, "Pan-astronomical Hermeneutics and the Arts of the Lamentation Priest," *Zeitschrift für Assyriologie und Vorderasiatische Archäologie* 107 (2017): §B3.

[74] Note the male variant in the preceding incantation (CT 23, 10 rev. iii 14): *kīma šūt rēši lā ālidi nīlka lībal*, "May your semen dry out like (like that of) an infertile eunuch!"

[75] For glimpses from the Bible, see Stol, *Birth in Babylonia*, 7f., e.g. *Leviticus* 12.2 stating that "if a woman gives seed (*zāraʿ* Hif.) and bears a male child, she shall be unclean for

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seven days." Note also *Genesis* 3.15, where mankind is designated as "the seed of Eve." The idea of female semen is also entertained in Greek and Roman medical writings, e.g., by the Hippocratics and Galen, yet contested by others, e.g., by Aristotle. The notion was supported by concepts of the female reproductive organs as the inverted version of the male organs and by the discovery of the ovaries ("female testicles") by Hierophilus of Alexandria. Yet, the engendering power of the female semen was often regarded as weaker than that of the male, to fit current views of gender relations. While the idea of female semen may be based on cultural images of conception as mixing of fluids in a container, the Hippocratics developed the idea of a struggle between male and female semen over the sex of the embryo, see L. Dean-Jones, *Women's Bodies in Classical Greek Science* (Oxford: Clarendon Press, 1994), 148–99; Hanson, "Conception, Gestation, and the Origin of Female Nature," 41–44; King, *Hippocrates' Woman*, 8–10, 232f.; King, "Inside and Outside," 8–10; G. E. R. Lloyd, *Science, Folklore and Ideology. Studies in the Life Sciences in Ancient Greece* (Cambridge: Cambridge University Press, 1983): 86–94. Similarly, beside their complex terminology for different female fluids, the Sanskrit sexological and medical texts show a variety of contradicting views of conception and female contributions of procreative fluid or semen (R. P. Das, *The Origin of the Life of a Human Being* (Dehli: Motilal Banarsidass Publishers, 2003).

[76] A commentator from the Middle Ages takes the female semen to be a concentration or distillation of uterine blood.

[77] See E. Levine, *Marital Relations in Ancient Judaism* (Wiesbaden: Harrasowitz, 2009), 318. For discussions of female semen in the Talmud, see D. M. Feldman, *Marital Relations, Birth Control, and Abortion in Jewish Law*, (New York: New York University Press, 1968), 135–40; F. Dal Bo, *Massekhet Keritot: Text, Translation, and Commentary* (Tübingen: Mohr Siebeck, 2013), 212f.

The suggestion above, that "fluids of intercourse" emitted in sexual arousal by both partners are synonymous with the semen of conception, finds support in the Jewish traditions, where female orgasm was regarded as a precondition for conception, because it caused the woman to emit semen that was believed to engender male offspring.[78]

4.1.2 Mythological Views of the Fertile Female Body: Enki and Ninḫursag

Besides the idea of a blockage preventing conception encountered in the gynecological text BAM 240, we also occasionally find the idea that pregnancy and birth can be impeded by the inadequate size of female reproductive organs. This notion is, for instance, implied by the term *muš*(*t*)*apšiqtu*, lit. "(woman who is) made too narrow," designating a woman suffering difficult labor.[79] Moreover, it constitutes a central motif in the Sumerian myth *Enki and Ninḫursag*, in which the god Enki has incestuous intercourse with several generations of goddesses sired by him.[80] As J. Cale Johnson (2013, 38–45) has shown, the names of these goddesses allude to a story of cosmological genesis related in the myth, as the names of these goddesses refer to geographical and physical entities of decreasing size or scale, from generation to generation. Thus, the decreasing sizes of the goddesses' reproductive bodies are expressed by landscape metaphors: successive partners of Enki include Nin-ḫursag "Lady of the mountain ranges," Nin-imma who is associated with a large field, and Nin-nisig who is associated with a small garden plot. The last goddess in this matrilineal genealogy is the goddess Uttu associated with weaving and textiles. As Tivka Frymer-Kensky (1992, 22f.) has pointed out, whereas the first goddesses conceive and give birth without any unease within nine days instead of nine months, the goddess Uttu behaves differently, i.e., like the prototype of a regular woman. In contrast to the other goddesses, Enki has to court Uttu and bring marriage gifts before he can have intercourse with her at her home. Also, because of her apparently small size, she has difficulty bearing a child, so that Ninḫursag has to intervene by removing the seed of Enki from Uttu's womb (from which different plants subsequently grow), thereby establishing the function of the midwife.

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[78] A passage in the Babylonian Talmud (bNiddah 25b) based on *Leviticus* 12.2 states that the sex of the child is dependent on whether woman or man emitted their semen first during intercourse (if it is the woman, it will be a male child; if it is the man, it will be a female child). See also bNiddah 31b; Levine, *Marital Relations*, 332f.; F. Rosner, "Sex determination as described in the Talmud," in *Medicine in the Bible and the Talmud* (New York: Yeshiva University Press, 1977) 173–78; R. Barkai, *Les infortunes de Dinah* (Paris: Cerf, 1991), 62f.; R. Fontaine, "The facts of life. The nature of the female contribution to generation according to Judah ha-Cohen's Midrash ha-Hokhma and contemporary texts," *Medizinhistorisches Journal* 29 (1994): 333–62; P. W. van der Horst, *Hellenism—Judaism—Christianity. Essays on their interaction* (Kämpen: Kok Pharos, 1994), 203–23.

[79] Couto-Ferreira, "She will Give Birth Easily," 293f.; Stol, *Birth in Babylonia*, 129f, also *šupšuqtu* "woman in dire straits," from *pašāqu* "to be difficult" (Š(t)-stem). Note also Finkel's analysis of a text about the Kassite king Kurigalzu (I. L. Finkel, "The Dream of Kurigalzu and the Tablet of Sins," *Anatolian Studies* 33 (1983): 75–80) that seems to be concerned with providing a reason why Kurigalzu's wife(?) named *Qatantu* cannot bear a child. While the ultimate cause for the distress is attributed to divine punishment of the king's sins, the woman's name, lit. "thin one," seems to imply a "physical" cause.

[80] See the discussions in Frymer-Kensky, *In the Wake of the Goddesses*, 22f.; Leick, *Sex and Eroticism*, 30–41; Rodin, *The World of the Sumerian Mother Goddess*, 115–280.

Furthermore, *Enki and Ninḫursag* is of interest for its cosmological models of female reproductive physiology, particularly in its motif of the swamp/marsh and riverside as the place of intercourse and conception. Enki encounters the goddesses bathing by the river and approaches their bodies by "setting his foot onto the 'boat'" and then onto the arid land before pouring his semen into the womb, both of which can be interpreted as metaphors for sexual intercourse, in that the female body is metaphorically described as a boat and a river meadow.[81] While the metaphor of the boat will be discussed below in the context of birth incantations, the image of the river meadow seems to be a variant of the field/earth-metaphor of the womb. The image of the river meadow offers an additional "hydraulic" model to explain why conception may not occur despite intercourse, i.e., due to a lack or overabundance of "watering," dryness or flooding, all of which impede the fertility of the 'meadow.'[82]

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[81] See Rodin, *The World of the Sumerian Mother Goddess*, 143–48.

[82] This may be alluded to in a Late Babylonian incantation against witchcraft (E. von Weiher, *Spätbabylonische Texte aus Uruk. Teil II* (Berlin: Gebr. Mann, 1983), No. 25: 1ff.), in which a "meadow" is carried away by overabundant "flooding" (cf. Stol, *Birth in Babylonia*, 72 n. 148; Steinert, "Fluids, Rivers, and Vessels," 11 n. 24). An incantation on the Neo-Assyrian tablet BAM 244: 41–70 is concerned with a gynecological problem also caused by witchcraft, although the function of the incantation is not entirely certain due to the tablet's fragmentary state (cf. Böck, "Medicinal plants and medicaments," 47 with n. 73, for a different interpretation). In my view, the topic here is infertility, since the recipes on the tablet are concerned with enabling conception (in line with this argument, the respective incantation rubric in BAM 244: 72 can be restored ⸢KA.INIM⸣.MA ÉN MUNUS *la* ⸢*e*⸣-[*ri-tu ana šu-ri-i*$^{?}$] "Wording of an incantation [to enable] a woman who is not [pregnant to get pregnant]"). Two crucial lines in this incantation (l. 41, 49) seem to read: [(ÉN) *it-te*]-*en-né-e*[*s*$^{?}$-*k*]*er ú-ga-ri* [*ni-il*] A.MEŠ *ú-mal-l*[*i*] "[(Incantation).] My 'meadow' ⸢becomes blocked again and again,⸣ (although) he$^{?}$ filled [(it) with a flood] of 'water.'" The incantation further speaks of the woman's "dikes"(? l. 53), implying blockage as explanation for failed conception despite sufficient intercourse.

While Mesopotamian models of conception seem to focus more on fluids and body substances, treatments for fertility focus on the womb and its preparation for conception, especially through the application of suppositories. The underlying mechanistic model of the womb in these treatments is based on the container-metaphor: The uterus acts as the receptacle for the male semen. Conception is conceptualized through two different agricultural metaphors or analogies: that of planting equates semen with plant seeds, while that of irrigation/flooding equates semen with water. The latter model left room to integrate vague speculations about a female contribution to conception that corresponded to male semen, based on bodily experiences of female secretions during intercourse. All these different models of conception have strong links to mythology and cosmology. Human procreation corresponds to the creation of the cosmos.

4.2 *Pregnancy: Shaping the Fetus and Bringing It to Term*

4.2.1 The Field and the Plant

While the idea of an active female contribution to the creation of the fetus during conception is relatively rare in the Mesopotamian texts, gestation and birth are viewed as primary “productive” achievements of the woman. It is her womb that “creates” or “shapes” the fetus into a being of human form (Akk. *banû*). While this creation as shaping is often attributed to divine action, especially to deities connected with anthropogony such as the mother/birth goddesses and the god Enki/Ea, sometimes, the notion of the womb as an organ partaking in divine creative powers can be encountered in incantations. A 1st millennium BCE incantation “to make an infertile woman get pregnant” (⸢KA⸣.[INIM].MA MUNUS NU Ù.TU *a-na ur-*⸢*ri*⸣*-i*) describes gestation by analogy of the earth making the plant sprout from the seed (Akk. *šūṣû* “to bring forth”).[83] As is clear from the preceding paragraphs, this analogy is based on the landscape metaphor of the womb as a field and on an agricultural model of conception, in which the womb is the “furrow” impregnated by the seeder plough.[84] The incantation seems to describe a prototypical situation, in which a barren woman conceived and successfully gave birth to a baby with the help of an unidentified god, an exemplar that one hopes can be replicated in the here and now:[85]

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[83] N. 4001: 14 // BM 51246 obv. 10. These texts will be edited in U. Steinert, *Women's Healthcare in Ancient Mesopotamia*, in preparation. The cosmological analog for the creative power of the womb is the female Earth (ki, *erṣetu*), see *Atramḫasīs* II iv 2 (Lambert and Millard, *Atra-ḫasīs*, 78, also 108ff.); K.3399+ rev. iv 49 and 58; Stol, *Birth in Babylonia*, 11 with n. 65.

[84] The word ab-sín (Akk. *absinnu*) “furrow” occurs as a synonym for *šassūru* “womb” in lexical lists (CAD Š/2, 145b (Antagal B 88 (= MSL 17, 192; cf. Stol, op. cit., 1f.). It is interesting that various parts of the seeder plough were metaphorically named, involving sexual meanings, see C. Wilcke, “A Riding Tooth: Metaphor, Metonymy and Synecdoche, Quick

8 God [X] has cultivated the field (by means of a seeder-plough),
9 the infertile woman let the seed sprout (brought it forth).
10 Let it (i.e., the seed) be put into the 'furrow,'
11 Let her$^{?}$ create/shape the offspring[86]!
12–13 I have recited the incantation of Ea and Asalluhi three times! Incantation formula.[87]

Lines 8–9 formulate a principle of a "division of labor" in the production of the fetus: the male task is to plough the field and deposit the "seed" (NUMUN, Akk. *zēru*), the female task is to make the seed sprout, i.e., to initiate fetal growth.[88]

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and Frozen in Everyday Language," in *Figurative Language in the Ancient Near East*, ed. M. Mindlin, M. J. Geller and J. E. Wansbrough (London: School of Oriental and African Studies, 1987), 70, 84 n. 1–2. For instance, the seed funnel of the plough could be called "penis," and *ittû* "seed funnel of the plough" acquires a secondary meaning "father" in Akkadian, but in fact other parts of the plough are named after the female genitalia or are called "mother" (cf. also B. Hruška, "Pflug. A. Mesopotamien," in *RlA* 10, ed. D. O. Edzard and M. P. Streck (Berlin: de Gruyter, 2003–2005), 511ff.; CAD U/W, 120f. lex., citing ḪAR-ra = *ḫubullu* V 136a and the commentary in Hunger, SpTU 1, No. 83: 4).

[85] N. 4001: 8–13 // BM 51246 obv. 8–9. For the incantation see U. Steinert, *Women's Healthcare in Ancient Mesopotamia*.

[86] An alternative possible reading of the damaged sign at the beginning of l. 11 is [num]un "seed."

[87] N. 4001: 8–13 reads: ^{d}⸢x⸣ A.ŠÀ *i-*⸢*ri*⸣*-iš* / *la a-lit-tu*$_4$ NUMUN *ú-še-ṣi* / ⸢*a-na*⸣ AB.SÍN *li-in-na-di-ma* / [M]U *li-ib-ni* / [*ši*]-⸢*ip*⸣*-tu*$_4$ *ša* ^{d}*É-a ù* ^{d}*Asar-lú-ḫi* / [3-*šú a*]*d-di* TU$_6$ ⸢ÉN⸣.

[88] An unusual mathematical text from the Seleucid period (E. von Weiher, *Uruk: Spätbabylonische Texte aus dem Planquadrat U 18. Teil IV* (Mainz am Rhein: von Zabern, 1993), No. 173 ii 2–9, see Stol, *Birth in Babylonia*, 12 with literature) "calculates" the growth of the fetus as it increases its size half a barleycorn (1,4 mm) per day, reaching the size of one cubit (ca. 50 cm) in the month of birth. A varying image of fetal development draws on the image of curdling of milk/cheese (as coagulation of the fluids of conception). On the other hand, the underlying metaphor for fetal formation may alternatively stem from the textile industry or building/construction, understood as "knotting together" (ka-kešda/kéš, *kaṣāru*, cf. UM 29–15–367 // VS 17, 33 (VAT 8381) l. 4, Cunningham, *Deliver me from Evil*, 69–75; J. van Dijk, "Incantations accompagnant la naissance de l'homme," *OrNS* 44 (1975): 53ff., 62ff.; CAD K, 257–63; Stol, *Birth in Babylonia*, 9–19, 60f., with comparative material; cf. the lexical equation [ru/ri] = *kaṣāru ša riḫûti* "knotting together of semen" in A VI/4: 162 (= MSL 14, 443).

Lines 10–11 seem to repeat this dual structure: the subject of the sentence in line 10 is the seed, whereas the subject of line 11 is to be understood in parallelism with line 9 either as the woman or the womb designated as "furrow" in line 10. The action performed by the womb expressed by *banû* "to create" can mean "to shape," entailing the notion of fetal growth and development.[89] According to this model of procreation, infertility had to be regarded as a failure, on the part of the woman or the womb, to activate the creative processes of seed germination.[90] As we have seen above, other medical texts offer alternative physiological explanations for the woman's inability of conceive. Thus, BAM 240: 69'f. implied an "anatomical" explanation based on the container metaphor of the womb.[91]

4.2.2 Retaining the Fetus and the Danger of Leakage

The most prominent topic in Mesopotamian gynecological texts with regards to pregnancy is the concern to preserve the fetus and to bring it to full term, voiced in numerous prescriptions and rituals to prevent miscarriage and the loss of fluids, especially amniotic fluid (A.MEŠ) and blood.[92] These processes of fluid loss are once more conceptualized with the help of landscape and container metaphors. In the following quote from a 1st millennium BCE incantation to stop bleeding during pregnancy (which was also used against nose bleed), the images of the meadow, the fermenting vat and the waterskin are employed in the form of similes to describe physiological processes:

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[89] For the womb as active "creator" of the fetus, see also M. Guichard, *L'Épopée de Zimrī-Lîm*. Florilegium marianum XIV (Paris: SEPOA, 2014), 17 ii 22f., where king Zimrī-Līm addresses his soldiers: *šassūrum ibnīkunūti ummum kīma kunūtīma uldanni* "A womb has created you, a mother bore me—just like you."

[90] Cf. Greco-Roman notions about fetal development as going through successive stages associated with plants and animals, from more basic to higher forms of existence, discussed by Brooke Holmes in this volume.

[91] A sex omen from *šumma ālu* expresses the idea that the male semen ("waters of womanhood") can be defective, but it is unclear whether the ancient scholars regarded this as a cause of failed conception or whether they believed that "defective seed" would result in children with birth defects. See above n. 68.

[92] Bleeding during pregnancy was regarded as anomalous and sometimes designated by the Akkadian term *nahšātu*, derived from the verb *naḫāšu* "to prosper; to thrive." For an overview and textual examples see Finkel, "The Crescent Fertile"; Scurlock, "Baby-Snatching Demons," 136–38; Scurlock and Andersen, *Diagnoses*, 268; Scurlock, *Sourcebook*, 571–85 (edition of BAM 237); Steinert, "K. 263+10934"; Steinert, "Fluids, Rivers, and Vessels." The underlying logic is that a pregnant woman's menstrual blood is needed to nourish the fetus.

W 23279 obv.$^{!}$ i 11′–27′ // E. von Weiher, SpTU 4, No. 129, pp. 32f. (there rev. vi); cf. T. J. Collins 1999, 177f.; A. Schuster-Brandis 2008, 322, 325 (ca. 5th/4th century BCE, from Uruk)

11′ [É]N *mim-mu-ú* DINGIR.MEŠ DÙ-*ú a-me-lu-tu*
12′ [DINGIR.M]AḪ MÚD-*ši-na ib-ni*
13′ [*i-mu*]*r-ši-na-ti-ma* ^{d}IDIM *i-bak-ki*
14′ [*eli le-t*]*i* ^{d}*ma-mi il-la-ku di-ma-šá*
15′ [x x *i*]*l*$^{?}$*-su-ni* DINGIR.MEŠ *ka-la-ma*
16′ [x x] ⸢x⸣ ^{d}15 DINGIR.MAḪ ^{d}UTU *u* ^{d}*gu-la*
17′ [MÚD *šá*] GURUŠ *ina ap-pi-šú u šá* KI.SIKIL *ina* GAL$_4$.LA-*šá*
18′ [*it-t*]*a*-[*na*]-⸢*tuk*⸣ DU-*ku* MÚD.MEŠ-*šú di-ma-šú*
19′ [*it*]*-ta-na-tuk u* DU.DU-*ak*
20′ GI[N$_7$] ⸢*ta-mir-ti*⸣ *šá la kul-lu-u ka-lu-ú-šá*
21′ ⸢GIN$_7$⸣ DUG.NÍG.DÚR.BÙR *šá* ⸢*pu*⸣*-ru-*⸢*sa-šá*⸣ *la pár-súm*
22′ [G]IN$_7$ *na-a-a-du šá la* ⸢*dun*⸣*-nu-nu* KEŠDA *la tak-lu* SA
…

Incantation. (For) all that the gods created of mankind,
[Bēlet-i]lī created their blood.
Ea [sa]w them and was crying,
Tears were running over Mami's ch[eeks].
[… they sum]moned$^{?}$ all the gods,
[…] Ištar, Bēlet-ilī, Šamaš, Gula, (saying):
['Blood] continually drips from the young man's nose and from the young woman's vagina,
His (i.e., their) blood and tears continually flow,
[It] drips and flows all the time,
Li[ke] ⸢a (waterlogged) meadow⸣ whose dikes are not holding back (the water),
⸢Like⸣ a fermenting vat whose stopper does not stop (the outflow),
Like a waterskin whose strap is not strong, whose drawstring is not trustworthy …'

The text again describes a prototypical situation drawn from Babylonian creation myths, explaining that, ever since humans were created, they were made by the mother goddess as creatures with blood, so they are bound to bleed. Bleeding is seen here as an unavoidable process with ambivalent significance, since blood stands at the same time for life and mortality. Bleeding is further described as affecting both sexes, which is expressed through opposite body openings (men bleed from the nose, women from the vagina).[93] This "birth defect" of mankind caused by the gods has to be assuaged through divine action. Taking pity on mankind, they solve the problem by having the "seal of the god Anu" brought down from heaven, which will stop the hemorrhage by sealing up the man's nose and the woman's vagina (alluding to the common therapy in Mesopotamian medical practice of applying hemostatic minerals and stone amulets).[94]

4.2.3 Gestation as Production

In the preceding sections, we already encountered the notion of gestation as a creative and productive achievement of the woman and her body. This idea is dominantly expressed through technological models based on the container metaphor of the womb, as discussed above. Thus, the womb is equated with a fermenting vessel or crucible, but also with a pottery oven (*utūn paḫāri*). These images aptly depict the process of gestation as a transformation. The pottery oven in particular is linked with Babylonian creation myths (especially with *Atramḫasīs*), in which the mother goddess and the god Enki create humans from clay.[95] In the following quote from a complex Late Babylonian ritual for a woman who cannot bring babies to term (*sinništu lā mušēširtu*; from *ešēru* "to be straight/easy," Š-stem), the patient touches a pottery oven and asks the oven to transfer its ability to produce something intact to her womb:[96]

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[93] The incantation's etiology of bleeding as a process, to which both sexes are prone, can be seen as an allusion to the mother goddess' creation of the first human prototype in *Atramhasīs*, from a mixture of ingredients including the blood of a slain god. Moreover, the two-gendered model of bleeding is paralleled in *Atramhasīs* by the subsequent creation of seven pairs of male and female human beings destined to procreate, stressing the complementary relation of the sexes in reproduction, see W. G. Lambert and A. R. Millard, *Atra-ḫasīs*, 60ff. I 249–260 and K. 3399+ obv. iii 1–14; cf. B. R. Foster, *Before the Muses*, 270 iii 15′–31′; M. Stol, *Birth in Babylonia*, 113f.

[94] For this passage see SpTU 4, 129 obv.! i 24′–27′ //, T. J. Collins, *Natural Illness in Babylonian Medical Incantations*, PhD Dissertation University of Chicago (Ann Arbor: UMI, 1999), 178f.; Schuster-Brandis, *Steine*, 325. For minerals to staunch bleeding, see also Schuster-Brandis, op. cit., 109f. *passim*; Steinert, "K. 263+10934," *Sudhoffs Archiv* 96 (2012): 76–78, 81–83, 86–88.

[95] The Greek version of this ideational complex is the association of the womb with the bread-oven, which like the hearth can represent woman, see King, *Hippocrates' Woman*, 33; A. E. Hanson, "Paidopiia: Metaphors for Conception, Abortion, and Gestation in the Hippocratic Corpus," *Clio Medica* 27 (1995): 291–307.

[96] For an analysis of this ritual see J. Scurlock, "Translating Transfers in Ancient Mesopotamia," in *Magic and Ritual in the Ancient World*, ed. P. Mirecki and M. Meyer (Leiden: Brill, 2002),

E. von Weiher, SpTU 5, No. 248 (Uruk, ca. 4th century BCE)

26 TA ÍD *il-lam-ma ana muḫ-ḫi a-tu-nu* BAḪAR$_2$ *il-lak-ma a-tu-nu i-ḫaṣ-ṣí-in-ma*
27 *ki-a-am i-qab-bi a-tu-nu el-let* DUMU.MUNUS ^{d}*A-nim ra-bi-tu*$_4$ *šá ina lìb-bi-šú na-an-ḫu-za-at*
28 IZI ḪÁŠ$^{?}$ *šá*$^{!}$ *ina lìb-bi-šú* ^{d}[G]IŠ.BAR *qar-du ir-mu-ú šu-bat-su šal-ma-ti-ma*
29 *ú-de-e-ka šal-mu* kur [x]-*mat ta-ma-al-li-ma u ta-ri-qa u a-na-ku ir-re-e-ma*
30 *šá ina lìb-bi-ja ul ú-*[*š*]*al-lam šal-ma-nu-ut-ka bi-in-nim-ma la šal-ma-nu-ta-ma*
31 *le-qé-e ú-du-ú g/zi-*[x]*-mu* TA ŠÀ-*ka la il-la-ʾu ana-ku šá ina lìb-bi-ja*
32 *lis-lim-ma maš*$^{?!}$*-ri lu-m*[*u-u*]*r ina* É *áš-bak pa-ni lu-ú maḫ-rat te* ÉN

She comes up from the river and goes to a potter's oven. She embraces the oven and speaks as follows: 'Oh pure oven, great daughter of Anu, in whose inside the fire is kindled. (Lower) belly, in whose inside the heroic fire god sets up his residence. You are intact, and your implements are perfect. ⸢…⸣ you become full and you become empty. But I, I become pregnant, yet then I cannot *bring to term* what is in my belly. Give me your *perfection* and take away (my) *imperfection*[97]! … implements shall not emerge from your belly, (but as for) me– what is in my belly, shall come to completion! May I see *prosperity*! In the house where I live, let me be acceptable!' Incantation formula.

The analogy between the oven and the womb/belly rests both on aspects of similarity in shape and function, suggested by the image schema of the CONTAINER. Both are conceptualized as internal spaces and referred to by the term *libbu* "belly; womb; inside"; the oven is addressed as the "lower belly" (ḪÁŠ, Akk. *emšu*). Furthermore, their functions are set in analogy, as the

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209–23; Couto-Ferreira, "The River, the Oven, the Garden," 105–10. The text has also been translated in J. Scurlock, "Medicine and Healing Magic," 122–26.

[97] The Akkadian word *šalmānūtu* seems to be attested only in this late text, but it may be a by-form of *šalmūtu* "unharmed condition; well-being," cf. von Weiher, SpTU 5, 64 note on l. 30. The implied meaning ("give me your *perfection*," i.e., your ability to bring to term) is apparently based on the verb *šalāmu*, which is used in the D-stem in the meaning "to bring to completion, to bring to term" (cf. also *mušallimtu* "a (woman) who brings (her pregnancy) to term," CAD M/2, 256b sub 2).

processes of pregnancy and birth are compared with the "filling" and "emptying" of the oven.

Since the womb-metaphor of the pottery oven occurs only in this Late Babylonian text, it may be a late variant of the container metaphor. However, already in a Sumerian literary dialogue from the Old Babylonian period, one of the interlocutors insults his opponent by calling him "flour-malt spread out in the oven (šurin) of mankind," thereby combining the image of the womb as an oven with technological models from beer brewing as a metaphor for gestation.[98] As an initial procedure in brewing, sprouted (malted) barley was dried (here in an oven), before it was mixed with water and other ingredients for fermentation.

These two textual examples illustrate the creative variation of metaphor use in literature, by drawing on a traditional repertoire of basic metaphors with remarkable long-term stability. The variations are based on differentiated daily-life experiences, i.e., on the use of multiple types of ovens for different production processes. Moreover, the image of the oven describes gestation as a production process, illustrating the application of a model of the body already amply encountered in the preceding sections, which can be termed "the body technologic."[99] This model, which conceptualised internal body processes with the help of cultural technologies including water management techniques (canal building, irrigation), agriculture, or brewing, is a recurring feature of Mesopotamian medical theory, rooted in broader cultural understandings of the body.

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[98] See J. C. Johnson and M. J. Geller, *The Class Reunion—An Annotated Translation and Commentary on the Sumerian Dialogue, Two Scribes* (Brill: Leiden/Boston, 2015), 33–34, 47 line 72: $^{\text{im}}$šu-rin-na nam-lú-ùlu$^{\text{lu}}$-ka zì-munu$_4$ i-ni-bàra-bàra. For a parallel process in beer brewing, the drying of "sourdough" (bappir$_2$) in an oven, see W. Sallaberger, "Bierbrauen in Versen," 308, 315, 325 (note that zì-munu$_4$ and bappir$_2$ are both ingredients in brewing). It seems that the speaker intends to say that his opponent is not a human being of any understanding, but just "fetal matter."

[99] Cf. Elisabeth Hsu's concept of the "body ecologic" in Chinese medicine, which by contrast focuses on the idea of a dynamic equilibrium and homology between the processes/energies in the body and those in the environment (Hsu, "The biological in the cultural"). For Mesopotamian examples of the "body technologic" in Mesopotamian therapeutic incantations see e.g., U. Steinert, "Fluids, rivers, and vessels" and "Körperwissen, Tradition und Innovation."

4.3 *Labor and Birth*

4.3.1 The Boat and the Cow

In this section, we turn to the prominent metaphors and tropes connected to the process of delivery in Mesopotamian sources.[100] The imagery of birth emerges most clearly from Sumerian and Akkadian birth incantations and rituals, which are an important genre within the texts concerned with women's health, attested from very early on in the 3rd millennium BCE down to the Neo-Assyrian and Late Babylonian period (1st millennium BCE). From a diachronic perspective, the repertoire of images is already present in the texts of the 3rd and early 2nd millennium BCE, and does not change in a drastic way, although a few new motifs develop in later Akkadian texts. Thus, early incantations were transmitted down to the 1st millennium BCE, while the traditional imagery of the incantations was adapted in new compositions that were constantly being added to the incantation corpus, sometimes by "recycling" known incantations.

Two images of the woman in childbirth, found both in Sumerian and Akkadian texts and attested over this long period of textual transmission, are the woman as a boat travelling on a river/canal, steering her cargo to the safe harbour, and the woman as a cow.[101] Both images were applied to describe normal birth and difficult labor, but birth incantations were often put to use in rituals aiming to speed up or ease a difficult delivery. From a comparative point of view, it is interesting to ask how the Mesopotamians understood the process of delivery, in particular, to whose agency they attributed the process: to that of the woman or the baby? It is well known that the Greeks did not recognize uterine contractions as responsible for the progress of labor, but attributed it to the agency of the baby fighting its way out from the womb, thereby causing the woman's labor pains.[102] It is noteworthy that the Mesopotamian birth incantations seem to express both opinions. In incantations featuring the boat metaphor, the woman is described as partially controlling or directing the process of birth (she steers the boat floating along the river, i.e., she is "going with the flow"). Birth is conceptualized here as journey, a boat trip down the river.[103]

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[100] The tropes of birth in gynecological sources have also been summarized by Couto-Ferreira, "She will Give Birth Easily," 310f. For birth in Mesopotamian sources in general, see also Stol, *Birth in Babylonia*, 60–70, 109–45. See also C. D. Bergmann, *Childbirth as a Metaphor for Crisis. Evidence from the Ancient Near East, the Hebrew Bible, and 1QH XI, 1–18* (Berlin/New York: De Gruyter, 2008), 9–59 for discussion for the metaphors of birth in incantations.

[101] The motif of the birthing woman as the cow is a traditional one, which goes back to 3rd millennium BCE birth incantations, and is further developed in the 2nd and 1st millennium BCE sources as a *historiola* about a cow named Geme-Sîn who is loved by the moon god, impregnated by him in the shape of a bull, and is saved in her difficult labor by divine intervention. The imagery of bull and cow is connected to symbolic and mythological levels of meaning, as these animals can stand for divine and human actors, but they can also symbolically express ideal notions of fecundity and noble lineage/descent. The image of the cow in particular stands for ideal motherhood (see the overview in Stol, *Birth in Babylonia*, 60–70; H. Waetzoldt, "Rind. A. In mesopotamischen Quellen des 3. Jahrtausends," *RlA* 11, ed. M. P. Streck (Berlin: de Gruyter, 2006–2008), 375–88, esp. 383; Goodnick Westenholz, "Figurative Language," 191f.; C. E. Watanabe, *Animal Symbolism in Mesopotamia. A Contextual Approach* (Wien: Institut für Orientalistik der Universität Wien, 2002), 57ff., 105ff.; Steinert, "Cows, Women and Wombs," 223–27.

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[102] See Hanson, "Conception, Gestation, and the Origin of Female Nature," 54; A. E. Hanson, "Continuity and Change: Three Case Studies in Hippocratic Gynecological Therapy and Theory," in *Women's History and Ancient History*, ed. S. B. Pomeroy (Chapel Hill/London: University of North Carolina Press, 1991), 73–110, esp. 87–95; King, *Hippocrates' Woman*, 124.

[103] See AUAM 73.4094: 1ff. (M. E. Cohen, "Literary Texts from the Andrew University Museum," *RA* 70 (1976): 133–40); parallel to YOS 11, 85 (van Dijk, "Incantations accompagnant la naissance de l'homme," 52–79) and E.47.190 (G. Farber, "Another Old Babylonian childbirth incantation," *JNES* 43 (1984): 313–16); cf. Scurlock, "Medicine and Healing Magic," 133f.; Couto-Ferreira, "She will Give Birth Easily," 310; Stol, *Birth in Babylonia*, 62; C. D. Bergmann, *Childbirth as a Metaphor*, 28–30. The Sumerian verb describing the woman's action is ri "to go along; to release; to let go" (equated with Akk. *eʾēlu*, referring to the undulating movement of an object floating in water; cf. commentary Cohen, op. cit., 140; CAD T, 334 s.v. *têlu*). The metaphor also invokes other similarities between a boat and the pregnant woman's belly, such as shape and function. Thus, in a prayer, the pregnant woman describes herself as a "full boat" (*eleppu malītu*, KAR 223 rev. 2 and dupl., E. Ebeling, *Aus dem Tagewerk eines assyrischen Zauberpriesters*, MAOG 5/3 (1931): 3–8; Stol, *Birth in Babylonia*, 93ff.), and in the Sumerian incantations her boat is said to be loaded with carnelian and lapis lazuli (representing a female/male child). The boat trip image occurs as a motif also in other Mesopotamian *rites de passage*, especially in connection with the trip of the deceased to the netherworld, also designated as "crossing the river," and is furthermore prominent in apotropaic and exorcistic healing rituals, where it symbolizes separation. In the context of birth, both the boat and the cow are linked with the moon god who is one of the male deities responsible for women in childbirth, not only because he is the lord of the month (*arḫu*). The association of the moon god (Nanna(r), Sîn) with boats and bovines stems from the crescent shapes of the moon in the sky. Thus, the moon is described as looking like a trough, a barge (*makurru*) or like a kidney. Among his epithets are "Divine Boat," "Great Boat of Heaven," "Barge," or "Holy Barge of Heaven" (CAD M/1, 142 lex. sect. and sub 3; M. Krebernik, "Mondgott. A. I. In Mesopotamien," *RlA* 8, ed. D. O. Edzard (Berlin: de Gruyter, 1993–1997), 360, 363; B. Groneberg, "Searching for Akkadian Lyrics: From Old Babylonian to the Liederkatalog KAR 158," *JCS* 55 (2003), 64; D. Collon, "Mondgott. B. In der Bildkunst," *RlA* 8 (1993–1997), 372ff. with no. 14–15, 26). On the other hand, the moon is described as a bull, because the moon crescent has "horns" (*qarnu*), but he is also a shep-

In other birth incantations, the baby in the womb is directly addressed to take action and to slip out from the womb through its own effort, especially if the delivery is delayed and difficult.[104] A second image implying female agency is the comparison of the woman in (difficult) labor ("lying in her blood") with a warrior on the battlefield, known from Akkadian incantations and other literary texts of the 2nd and 1st millennia BCE.[105] In this analogy, childbirth becomes a dramatic fight for life and death. Yet, at the same time, difficult labor and delivery are characterized by images describing a loss of control of the woman over her body, as becomes apparent by repeated appeals to divine help and intervention in the incantations. Carrying the boat imagery of birth to a tragic outcome, a Neo-Assyrian elegy for a woman who died in childbirth, addresses her with the simile "cast adrift like a boat in midstream, your thwarts all broken, your mooring ropes cut."[106] The metaphor of the 'boat' floating in

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herd of the heavenly cows (i.e., the stars), see W. Heimpel, "The Babylonian Background of the Term 'Milky Way,'" in *DUMU-E2-DUB-BA-A. Studies in honor of Åke W. Sjöberg,* ed. H. Behrens, D. Loding, and M. Roth (Philadelphia: The University Museum, 1989): 249–52; Krebernik, "Mondgott," 366f.; H. Waetzoldt, „Rind. A. In mesopotamischen Quellen des 3. Jahrtausends," in *RlA* 11, ed. M. P. Streck (Berlin: de Gruyter, 2006–2008): 375–88; see also Stol, *Birth in Babylonia*, 61f., 71ff., 78; Civil, "Medical Commentaries from Nippur," 332: 21; Steinert, "Cows, Women and Wombs," 214–15, 223–27.

[104] See BAM 248 i 59–60; iv 2–3 (Stol, *Birth in Babylonia*, 69; Scurlock, *Sourcebook*, 596, 599); YOS 11, 86: 18–27 (Scurlock, *Sourcebook*, 593f.; van Dijk, "Une incantation accompagnant la naissance de l'homme," 502–07; MS 3067: 15–18, George, *Mesopotamian Incantations*, 141).

[105] See W. G. Lambert, "A Middle Assyrian Medical Text," *Iraq* 31 (1969): 31: 33–50, esp. l. 40; Foster, *Before the Muses*, 1006; Scurlock, *Sourcebook*, 606; M. B. Hammons, *Before Joan of Arc: Gender Identity and Heroism in Ancient Mesopotamian Birth Rituals* (Nashville: Vanderbilt University, 2008), 101–06. For women in childbirth as comparanda for warriors in battle see M. Haul, *Stele und Legende. Untersuchungen zu den keilschriftlichen Erzählwerken über die Könige von Akkade* (Göttingen: Universitätsverlag Göttingen, 2009), 206, 356f. AO 6702 i 18–21 and 368–71 (commentary); C. D. Bergmann, *Childbirth as a Metaphor*, 31, 50f. Goodnick Westenholz, "Figurative Language," 192f. has pointed out that this metaphor positing identity between warriors and woman in labor is based on the shared feature of shedding one's own blood. The same correspondence between giving birth and fighting is also found in Greek texts, see King, *Hippocrates' Woman*, 124 with literature.

[106] See E. Reiner, *Your Thwarts in Pieces, Your Mooring Rope Cut: Poetry from Babylonia and Assyria* (Ann Arbor: University of Michigan Press, 1985), 85–93; Foster, *Before the Muses*, 949; A. Livingstone, *Court Poetry and Literary Miscellanea* (Helsinki: University Press, 1989), 37–39 No. 15; A. R. George, "The Assyrian Elegy: Form and Meaning," in *Opening the Tablet Box. Near Eastern Studies in Honor of Benjamin R. Foster*, ed. S. C. Melville and A. L. Slotsky (Leiden: Brill, 2010), 203–16. Elsewhere in the birth incantations, the "boat is held back at the quay of death" (BAM 248 i 62; Scurlock, *Sourcebook*, 596). Similar pas-

a stormy sea, which stands for the woman in childbirth and at the same time alludes to the baby in the amniotic fluid, can furthermore be related to important motifs in Mesopotamian literary texts that were adapted in the Biblical tradition, especially the motif of the Ark in the Mesopotamian *Flood Story* and the motif of the baby abandoned in a reed basket released to the river, found in the *Sargon Legend* and the story of Moses.[107]

Beside hints of the limited agency of both woman and child gleaned from birth incantations,[108] the Mesopotamians have not left any theoretical discussion on the physical processes of delivery or the function of uterine contractions, though they emphasize pain as an intrinsic feature of labor.[109] How the

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sages referring to a "mooring rope" (dur, *riksu*, *markassu*) holding back the boat were also connected to the umbilical cord by the ancient scholars, creating ambiguity in the meaning of the boat metaphor, as it could stand both for the woman or the baby (see BAM 248 ii 49, 64; K. 3485+ obv. 11'; Scurlock, *Sourcebook*, 596f.).

[107] The link with the *Flood Story* and the *Sargon Legend* was pointed out by I. L. Finkel, *The Ark before Noah* (London: Hodder, 2013), 133–36; cf. also the discussion in A. D. Kilmer, "On Babies, Boats, and Arks," In *Studies Presented to Robert D. Biggs*, June 4, 2004, ed. M. T. Roth, W. Farber, M. T. Stolper and P. von Bechtolsheim (Chicago: The Oriental Institute of the University of Chicago, 2007), 159–66. Note that the account of the Flood contained in Tablet XI 132 of the *Gilgamesh Epic* (A. R. George *The Babylonian Gilgamesh Epic* (Oxford: Oxford University Press, 2003), 710, 888), describes the sea during the flood as having "fought like a woman in labor" (*ša imdaḫṣu kīma ḫajjālti*). See also BAM 248 ii 46 describing the situation of labor as a "storm" (*meḫû*), a word associated with floods (see Scurlock, *Sourcebook*, 596, 601; Goodnick Westenholz, "Figurative Language," 197f.).

[108] Two passages in Assyrian birth incantations, in which a first person speaker calls out in panic to the god Marduk for help, have repeatedly been understood as the words of the baby speaking from the womb, see Lambert, "A Middle Assyrian Medical Text," 36; Finkel, "The Crescent Fertile," 45. However, these passages probably have to be understood as utterances of the woman in travail, as can also be inferred from an Old Babylonian birth incantation, in which the woman features as the speaker talking of "my boat" being held back (see MS 3082 obv. 20; A. R. George, *Mesopotamian Incantations*, Pl. LXXIX; SEAL text 5.1.27.103; cf. C. D. Bergmann, *Childbirth as a Metaphor*, 52–54 for discussion.

[109] The painfulness of labor is sometimes expressed with *kabātu* "to be heavy; painful; hard" (E. von Weiher, SpTU 4, No. 153: 25 *kab*[*tat*]; Stol, *Birth in Babylonia*, 130f. The word for "labor pains" in Akkadian is *ḫīlū*, derived from *ḫâlu*/*ḫiālu* "to be in labor," a verb involving several interrelated meanings expressing bodily aspects of labor: exuding liquid (discharge of the amniotic fluid and blood) and being in pain, trembling, screaming (Stol, *Birth in Babylonia*, 122–24; Haul, *Stele und Legende*, 368–71). Thus, the birth incantations and other medical texts mention "screaming in labor" (*rigim ḫâli*), cf. C. D. Bergmann, *Childbirth as a Metaphor*, 49f. A commentary from Nineveh explains the term *mušapšiqtu* (MUNUS LA.RA.AḪ) "woman in difficult delivery" as "a woman whose labor pains are severe" (*sinništu ša ḫīlūša dannū*), equated with the noun *ḫajjāltu* "woman in labor,"

processes of delivery were conceptualized in Mesopotamia can be illustrated by the image repertoire of the birth incantations. The text chosen as an example dates to the Old Assyrian period (ca. 1st half of the 2nd millennium BCE) and is particularly intriguing because of the subtle use of puns.[110] While the woman in labor is equated with the cow (*arḫum*) in the first lines, several layers of meaning are evoked at the same time through the play with homophonous words:

1 *ar-ḫu-um a-ra-aḫ*
2 *a-ra-aḫ-tum ar-ḫa-at*
3 *ar-ḫi-iš* | *ta-ri-i* | *ar-ḫi-iš*
4 *tù-lá-ad ar-ḫi-iš* | *i-lu-ku*
5 *ma-ú i-pí-ša* | *i-na*
6 *a-pí-ša qá-qá-ra-am* | *tí-sú-uk*(?)[111]
7 *i-zi-bi-tí-ša* | *ta-ša-bi-iṭ*
8 *bé-tám*

The cow, oh cow!
Canal, oh canal!
Like a cow/quickly she becomes pregnant,
like a cow/quickly she gives birth!
Swiftly the waters are running from her 'mouth';

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derived from *ḫâlu* (K. 4192; R. C. Thompson, *Cuneiform texts from Babylonian tablets in the British Museum, Vol.* 18 (London: Trustees of the British Museum, 1904), No. 45 rev. 4–5; cf. CAD Ḫ, 32).

[110] kt 90/k 178, see C. Michel, "Deux incantations paléo-assyriennes," in *Assyria and Beyond. Studies Presented to Mogens Trolle Larsen*, ed. J. G. Dercksen (Leiden: Nederlands Insitituut voor het Nabije Oosten, 2004), 395–420. The tablet was found in the house of an Assyrian merchant at Kültepe (Anatolia). Two varying versions of this incantation also found on Old Assyrian tablets have been published lately, see B. Kouwenberg and J. C. Fincke, "A „new" Old Assyrian incantation," *JEOL* 44 (2012–2013): 141–46; G. Barjamovic, "Contextualizing Tradition," 57, 74–76. The incantation is similar to an Old Babylonian one (VAS 17, 34, see J. J. A. van Dijk, "Une variante du thème de l'Esclave de la Lune,'" *OrNS* 41 (1972): 343–48; Foster, *Before the Muses*, 170f.; W. Farber, "*Mannam lušpur ana Enkidu*: some new thoughts about an old motif," *JNES* 49 (1990): 308, no. 2.6; Stol, *Birth in Babylonia*, 63f.

[111] The verb remains difficult, and Michel, "Deux incantations paléo-assyriennes," 405f. suggests to analyze it as *té-sú-uq* (from *esēqu* "to incise, synonymous to *eṣēru* "to draw"); cf. B. Kouwenberg and J. C. Fincke, *JEOL* 44 (2012–2013): 141 with n. 3. An alternative favored here is a form of *nasāku* (*tissuk*) "to throw; to hurl; to scatter" (CAD N/2, 17 sub 2b), which may be more suitable from a semantic perspective.

> she *stirs up* the ground with her nose;
> with her tail she sweeps the house!
> (Michel 2004, 396f.; Barjamovic, 2015, 74f.)

Lines 1–8 introduce the woman's situation in delivery by evoking the image of the cow in birth pangs, by describing her actions and bodily processes. Specifically, the waters running from the cow's 'mouth' refer to the breaking of the amniotic waters during labor. At the same time, these lines present a number of puns by playing with the keywords *arḫum* "cow" (line 1) and *araḫtum* "canal" (line 2), the latter of which may be interpreted as a variant of *aruḫtum* "woman in labor" (lit. "the hastened one," or "giving birth speedily").[112] Accordingly, the word *arḫiš* in line 3 can mean either "swiftly (she gets pregnant/gives birth)" or "like a cow" (she gets pregnant/gives birth). However, since the word *araḫtum* in line 2 is also known as the name of a canal (lit. "swift one"), line 2 can be interpreted in the way of a double entendre, as "The canal is swift!" This creates a second image of birth, which focuses on water (i.e., the waters of birth) metaphorically described as a river/canal.[113] In the next lines, the image of an obstructed canal is evoked by the speaker (healer; ritual specialist) who calls onto the helpers of the mother goddess, the "daughters of the Wombs" (elsewhere known as the "Divine Wombs"), to facilitate delivery:[114]

> Whom shall I send (with) orders to the daughters of the 'Wombs,'
> seven and seven (saying): 'Bring your spades and your baskets

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[112] Thus, line 2 could alternatively be translated "the woman in travail is a cow!" *Aruḫtum* is derived from *arāḫu* "to hurry," see Stol, *Birth in Babylonia*, 123 with n. 83 who alternatively connects *aruḫtu* with *arḫu* "month" (i.e., going through the months) and suggests that Sumerian la-ra-aḫ is a loan from *lā aruḫtu* "not hastened" (i.e., woman in difficult labor). The term *aruḫtum* is used in a birth incantation rubric instead of the usual MUNUS Ù.TU.(DA.KAM) "woman in childbirth" (VAS 17, 33: 28; van Dijk, "Incantations accompagnant la naissance de l'homme," 63). A parallel expression is presented in English "child quickening."

[113] For detailed analysis see Michel, "Deux incantations paléo-assyriennes," 401–06.

[114] Michel, "Deux incantations paléo-assyriennes," 396–98: 8–16, 18–23; Barjamovic, "Contextualizing Tradition," 74f.: *ma-na-me* | *lá-áš-pu-ur* / *lu-wa-e-er a-me-er-ú-at ša-sú-ra-tim* / *7 ù 7-ma* | *ma-re-ki-/na* / *ù ta-áp-šu-kà-tí-ki-na* / *le-qé-a-nim-ma* | *ba-áb* / *a-ra-aḫ-tim ḫa-ba-tum* / *ḫu-ub-ta* | *šu-ma* | *za-kàr* / *e-tù-da-ni šu-ma* / *sí-ni-ša-at ša-pá-ra-ni* … *k*[*i*$^{?}$]-*i* / *ṣa-ru-ú* | *ki-ra-nim* | *li-i*[*m-q*]*ú-tám* / *qá-qá-ar-šu* | *ši-ip-tu*[*m*] / *lá-i-a-tum* | *ší-pá-at Ni-ki-l*[*i-il*$_5$] / *be-el ší-pá-tim ù be-el tí-i-i*[*m*] / *be-lá-at ša-sú-ra-tim l*[*i-dí*]. For the divine birth helpers in Akkadian incantations, see also Stol, *Birth in Babylonia*, 66–70, for goddesses present during birth Stol, ibid., 74–83, 111f.; Rodin, *The World of the Sumerian Mother Goddess*, 213–14; 263–79; Böck, *The Healing Goddess Gula*, 30–34.

> and clear the 'gate' of the canal (*bāb araḫtim*) completely!
> If it is male—like a *wild lamb*,
> if it is female—like a wild calf, …
> Like a wine snake may it drop to the ground!
> (This) incantation is not mine, it is the incantation of Nikkilil,[115]
> the master of incantations and master of the spell.
> May the mistress of the 'Wombs' re[cite it]!

The image of the divine midwives manually clearing the obstruction of the canal serves to evoke the opening of the woman's "birth canal." Then, the text switches back to the animal imagery, as the emerging baby is compared with wild animals (cow/ram), which present models for the ideal, easy birth.[116] In the end, the cow with calving difficulties successfully gives birth through divine intervention, serving as a prototype for any woman in difficult labor.[117]

A recurring feature of the rituals accompanying birth incantations is that words and actions are linked, often in such a way that the procedures to be performed take up the metaphors and imagery evoked by the incantation.[118] Thus, the image of the baby sliding down the "birth canal" lubricated by amniotic fluid can be compared with water flowing through a streaming drainpipe (*pisannu*), and the accompanying ritual prescribes to mix dust from a drainpipe with oil and to massage the woman's belly in a downward movement

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[115] Possibly identical with the male or female deity Nin-kilim "Lady Mongoose" who is a master over animals, especially field pests (e.g., mice), see Krebernik, *Die Beschwörungen aus Fara und Ebla,* 287–97; W. Heimpel, "Mungo," *RlA* 8, ed. D. O. Edzard (Berlin: de Gruyter, 1993–1997), 423–25, esp. 424 §2. The unusual occurrence of this deity in a birth context may be related to the animal imagery in the incantation. The "mistress of the 'Wombs'" probably refers to a birth or mother goddess (e.g., Nintur), see Michel, "Deux incantations paléo-assyriennes," 410f. for discussion.

[116] See Michel, "Deux incantations paléo-assyriennes," 407–11 for a commentary on these lines; C. D. Bergmann, *Childbirth as a Metaphor*, 45f. for the animal imagery. In other birth incantations, the baby in the womb is equated with a snake or a gazelle, as well as with species of the marine fauna, especially with shells and shellfish (*dādu*; *iš̌qillatu*), reminiscent of the comparison of the female genitalia with shells (see YOS 11, 86: 26; Veldhuis, "The Poetry of Magic," 41; Stol, *Birth in Babylonia*, 49). Cf. also below.

[117] For an overview of the birth incantations involving the cow see Veldhuis, "The New Assyrian Compendium"; N. Veldhuis, *A Cow of Sîn* (Groningen: Styx Publications, 1991); Stol, *Birth in Babylonia*, 60–62, 66–70; C. D. Bergmann, *Childbirth as a Metaphor*, 17–28; Couto-Ferreira, "She will Give Birth Easily"; Steinert, "Cows, Women and Wombs," 223–27.

[118] See Stol, *Birth in Babylonia*, 52–59; 70–72 and Couto-Ferreira, "She will Give Birth Easily" for the rituals and medical prescriptions including the use of expellant drugs; see also Böck, *The Healing Goddess Gula*, 153f.

(BAM 248 iii 2, 7–9, Scurlock 2014, 597; Couto-Ferreira 2014, 298). The ritual symbolism can sometimes be more intricate, as for instance in the following instruction from the same Neo-Assyrian tablet (BAM 248 iv 31–38; Scurlock 2014, 600):[119]

> Alternatively, you collect a shoot. You spread it underneath an acacia shrub that grows on a mudbrick wall. Then you say as follows: 'You have received your gift, (now) give me the plant of life, so that so and so, daughter of so and so, may easily deliver her fetus (lit. that of her belly)!' You shall say this, and then you pull out its (the plant's) root and top, but you shall not look behind you, nor shall you talk to anyone. You shall tie (the plant) into a band that you have spun, you bind it to her left thigh, and she will get well.

As has been pointed out before, the rationale of attaching the band containing the acacia shrub (KIŠI$_{16}$, Akk. *ašāgu*) to the woman's thigh involves the idea that the plant attracts the child's downward movement from the womb (Couto-Ferreira 2014, 304–06).[120] Significance may be attached to the fact that the plant grows on a mudbrick wall, and that its top and root has to be removed ("pulled off"), suggesting a spatial aspect (recalling the downward movement). Subtle symbolism is further implied in the procedure of first collecting a plant shoot (ḪENBUR$_2$, Akk. *ḫabburu*), which may be understood to represent a fresh growth, a "baby plant," which is presented as a gift or substitute to the acacia shrub for robbing it of its root and top. The substitute/gift seems to have another implication that plays with analogy and contrast: Just as the acacia shrub has received a shoot, the woman will deliver her child, which implies its separation from her body. This separation process seems to be triggered by the contrastive action of binding the plant to her body, invoking the release of the baby.

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[119] For the unusual features of this ritual and parallels in Greek texts, see also E. Reiner, *Astral Magic in Babylonia*, Transactions of the American Philosophical Society, New Series No. 85/4 (1995): 37f.; Stol, *Birth in Babylonia*, 71; Couto-Ferreira, "She will Give Birth Easily," 304–06, 308.

[120] For the *ašāgu* shrub, identified as a type of acacia (*Prosopis farcta*), see M. Civil, "Feeding Dumuzi's Sheep: The Lexicon as a Source of Literary Inspiration," in *Language, Literature, and History: Philological and Historical Studies Presented to Erica Reiner*, ed. F. Rochberg-Halton (New Haven: American Oriental Society, 1987), 47f.; Stol, *Birth in Babylonia*, 71 n. 138.

4.3.2 Linking Incantations and Therapies in Commentaries on the Birth Compendium BAM 248

To conclude this tour through the Mesopotamian childbirth texts, this section addresses the relationship between texts related to childbirth and ancient scholarly commentaries pertaining to them. I will focus on the question how Babylonian scholars engaged with and interpreted the body metaphors and imagery found in healing incantations and in the accompanying rituals and therapies. The Mesopotamian genre of text commentaries developed in the 1st millennium BCE, probably in conjunction with the formation of fixed textual series in different domains of scholarly learning. Commentaries were written on different types of texts, ranging from lexical lists to omen texts (e.g., extispicy, astrology), to different rituals (e.g., healing, exorcistic, cultic) and medical texts (e.g., diagnostic). The commentaries served several related ends: on the one hand, they had explanatory functions and were used as didactic tools in scribal and scholarly training, for the instruction of apprentice healing specialists. Thus, a central concern of commentaries was the clarification of specific Sumerian or Akkadian words or phrases in the source text to the adept. Another function was scholarly hermeneutics: to expand meaning by formulating alternatives, and to create additional levels of meaning in the source text by employing different epistemological techniques.[121]

One of the two commentaries that interest us here is preserved on a Late Babylonian tablet (ca. 4th century BCE) that belonged to a lamentation-priest from the city of Nippur. The text is described in its colophon as "Lemmata ("extracts"), oral explanations, and (materials for) a 'questioning,' following the sayings of a (master)-scholar," pointing to an educational use in the classroom.[122] The commented entries (or "extracts") stem from a compendium of birth incantations, rituals and medical treatments, whose contents are known from a number of 2nd and 1st millennia BCE sources. The main 1st millennium BCE manuscript of the birth compendium is a tablet from Assur, BAM 248 (ca. 7th century BCE), which includes material that goes back to 2nd millennium BCE (Old Babylonian) precursors, in particular, Sumerian and Akkadian birth incantations.[123] A second 1st millennium BCE fragment of a commentary on the birth compendium is known from Ur (U. 30654, UET 6/3, 897), which provides important new insight on the scholars' understanding of metaphors of birth that we discussed above.[124] The Ur commentary also necessitates reconsideration of the currently accepted reading of two lines in the base text (BAM 248 ii 51–52), within a fragmentarily preserved incantation. For the convenience of the reader, the relevant passage is cited here in context:

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[121] For an overview of the commentary literature see Frahm, *Babylonian and Assyrian Text Commentaries*.

[122] 11N-T3, Civil, "Medical Commentaries from Nippur," 329–38; Civil, "Appendix A: Cuneiform Texts," in *Excavations at Nippur. Eleventh Season*. OIC 22, ed. M. Gibson (Chicago: University of Chicago Press, 1975), 131 No. 20; A. Cavigneaux, "Aux Sources du Midrash: l'herméneutique babylonienne," *Aula Orientalis* 5 (1987): 243–55; Frahm, *Babylonian and Assyrian Text Commentaries*, 230–32 and *passim*; Scurlock, *Sourcebook*, 348–56; E. Jiménez, "Commentary on Therapeutic (én munus ù-tu-ud-da-a-ni) (*CCP* no. 4.2.A.a)," *Cuneiform Commentaries Project* (2016), at http://ccp.yale.edu/P459066 (accessed July 15, 2016). The tablet belonged to a certain Enlil-kāṣir, lamentation-priest of Enlil, son of Enlil-šumu-imbi, and descendant of ^{m}Lú-dumu-nun-na, "the Sumerian." The relevant colophon entry reads *ṣâtu šūt pî u maš'altu ša pī ummâni ša libbi* én munus ù-tu-du-da-a-ni, adding that the commentary relates to entries from 'an incantation for a woman in childbirth,'" citing the incipit of the source text.

BAM 248 ii 44, 47–54; Stol 2000, 65; Scurlock 2014, 596

44 *i-n*[*a kit-tab-ri-šú*$^{?}$] ⸢GUB⸣-*za*$^{!}$ ^{d}AMAR.UTU
…
47 *i-na* ⸢*ip*/*ki*$^{?}$⸣-x x x x *liš-li-ma* $^{\text{giš}}$MÁ
48 *i-na* ⸢*ip*$^{?}$⸣-x x x-*šu*$^{?}$ *liš-te-še-ra* $^{\text{giš}}$MÁ.GUR$_{8}$
49 *dan-nu lip-pa-ṭer mar-kas-sa*
50 *ù ed-lu lip-pe-ti* ká-*šá*
51 *ṭur-da*$^{\text{sic!}}$ $^{\text{giš}}$MÁ *a-na* KAR *šul-me*
52 *ṭur-da*$^{\text{sic!}}$ $^{\text{giš}}$MÁ.GUR$_{8}$ *a-na* KAR TI.LA
53 *meš-re-e-tu lip-te-ṭe-ra li-ir-mu-ú* SA.MEŠ
54 *ka-an-ga-tu*$_{4}$ *lip-taš-ši-ra li-ṣa-a nab-ni-tu*

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[123] For the birth compendium BAM 248 and its 1st millennium BCE duplicates see W. Röllig, "Der Mondgott und die Kuh: Ein Lehrstück zur Problematik der Textüberlieferung im Alten Orient," *OrNS* 54 (1985): 260–73; Veldhuis "The New Assyrian Compendium," 239–60; Veldhuis, *A Cow of Sîn* with earlier literature and survey of sources; Stol, *Birth in Babylonia*, 64–72; Scurlock, *Sourcebook*, 594–604; Couto-Ferreira, "She will Give Birth Easily." For 2nd millennium BCE sources see Cohen, "Literary Texts from the Andrew University Museum," 129–44; van Dijk, "Une variante du thème de l'Esclave de la Lune,'" 339–48; van Dijk, "Une incantation accompagnant la naissance de l'homme," 502–07; van Dijk, "Incantations accompagnant la naissance de l'homme," 52–79; Farber, "Another Old Babylonian Childbirth Incantation," 311–16; Cunningham, *Deliver Me From Evil*, 69–75, 96f., 107f., 131–59; E. Zomer, "KUB 4, 13: 13′–25′ revisited," NABU 2013, 45f. no. 27; D. Arnaud, *Corpus des textes de bibliothèque de Ras Shamra-Ougarit (1936–2000) en sumérien, babylonien et assyrien*, AuOr Suppl. 23 (Sabadell-Barcelona: Ed. Ausa, 2007), 75ff. No. 20; I. Márquez Rowe, "The Babylonian Incantation Texts from Ugarit," in G. Del Olmo Lete, *Incantations and Anti-Witchcraft Texts from Ugarit* (Boston/Berlin: De Gruyter, 2014), 77f.; I. Márquez Rowe, "Water of labour? A Note on the Story of Sin and the Cow," *Aula Orientalis* 33 (2015): 51–62.

[124] See Frahm, *Babylonian and Assyrian Text Commentaries*, 241 and *passim.*

⸢Stand by her side,⸣ oh Marduk![125] …
May the boat *arrive safely* in […],
may the barge arrive straight in […]!
May her taut mooring rope be loosened,
May her locked gate be opened!
Send forth the boat to the quay of wellbeing!
Send forth the barge to the quay of life!
May the limbs relax, may the muscles loosen!
May the sealed (limbs$^{?}$) become relaxed, may the creature come forth!
…

In most editions and discussions of this incantation, the beginning of lines ii 51–52 have been read DUR *ša* $^{\text{giš}}$MÁ "the mooring rope of boat" following Franz Köcher's copy in BAM, but in fact the first copyist of the tablet, Erich Ebeling (1923) in *Keilschrifttexte aus Assur religiösen Inhalts* (= KAR 196), copied DUR and DA as first signs in both lines. Collation of the tablet and comparison with old museum photos confirms the reading DA instead of ŠA. Second, the reading suggested here, *ṭur-da* "send forth!" (*ṭarādu* imp. vent.) is preferable, because it results in a verb necessary for a complete sentence, which current translations based on Köcher's copy have to supply in brackets (i.e., "(May) the mooring rope of the boat (be moored) to the quay of wellbeing!"). Third, the commentary U. 30654 (UET 6/3, 897) rev. 9′–10′ seems to confirm Ebeling's view:

DUR$^{\text{⸢ṭu⸣-ur}}$ *-da* $^{\text{giš}}$MÁ$^{?!}$: ⸢*ṭú*⸣*-ur-da* : $^{\text{giš}}$MÁ[126]
$^{\text{giš}}$MÁ : MUNUS.PEŠ$_4$: *um-ma* MUNUS.PEŠ$_4$ *ṭú-ri-di*[127]

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[125] Both Marduk and his father Ea as patron gods of the ritual and healing specialists (*āšipu*) are frequently addressed in birth incantations from the 2nd and 1st millennium BCE to assist the woman in delivery; Marduk is sometimes called "midwife" (ŠÀ.ZU "the one who knows the inside"), see Stol, *Birth in Babylonia*, 70–72.

[126] An alternative reading is suggested by U. Gabbay, "Commentary on Therapeutic (én munus ù-tu-ud-da-a-ni) (*CCP* no. 4.2.A.b)," *Cuneiform Commentaries Project* (2016), at http://ccp.yale.edu/P346934 (accessed July 15, 2016): DUR$^{\text{tu-ur}}$ *ša* $^{\text{giš}}$MÁ : *tu-lu ša* : $^{\text{giš}}$MÁ "the rope of the boat" means "the breast of the boat" (cf. above edition of BAM 248 and duplicates). Yet a third reading of the commentary is proposed by E. Jiménez: DUR$^{\text{tu-ur}}$ *ša* $^{\text{giš}}$MÁ : *tu-ur ša* : $^{\text{giš}}$MÁ, with *tu-ur* standing for *ṭurru* "rope" (of the boat), see Gabbay, "Commentary," n. 9.

[127] For *ṭurdī* or *ṭurridī*, G/D imp. fem. sg. of *ṭarādu*. U. Gabbay, "Commentary," suggests that the verb could also be read *li*-RI-*di*, without providing a translation, see also U. Gabbay, *The Exegetical Terminology of Akkadian Commentaries* (Leiden/Boston: Brill, 2016), 196. If the latter reading proves correct, it probably should be interpreted as a faulty spelling of a precative G-stem of *redû*, which can mean "to send; to take along; to guide" (i.e. "may

> "DUR-*da* the boat!" (*means*) 'send forth (*ṭurda*) the boat!' "Boat" (refers to) 'pregnant woman.' Thus: 'Send forth?[128] the pregnant woman!'

The commentary focuses on the reading of the sign DUR by explaining that it has to be read syllabically (*ṭu-ur*) to form the word *ṭurda* "send forth (the boat to the quay of well-being!)," followed by the more typical and recognizable orthography for the verb *ṭurda*.[129] Then the commentary plainly states that the boat refers to the pregnant woman. This is exciting, because the imagery of the birth incantations using this metaphor can be ambiguous, i.e., the boat can be interpreted as representing the woman or the baby. The scholar who wrote this commentary was well aware of the metaphoric meaning of the boat image.[130]

Another particularly nice example of how the commentator elucidates metaphors employed for woman and child in the birth incantations may be found in his analysis of the sentence "May he (i.e., the sun god) show the light to the one inside the shell!"[131] in the source text, *šá* ŠÀ $^{(\mathrm{na4})}$*iš-qil-la-tum li-kal-lim nu-ú-rum*, cited in 11N-T3: 38–40 and in U. 30654 rev. 3′–4′. Interestingly, both commentaries vary in some explanations they provide:

> **U. 30654 rev. 3′–4′**
> *ana* MUNUS.PEŠ$_4$ *iq-ta-bi* / $^{\mathrm{na4}}$iškila *ṣil-lat šá-niš um-mi šal-šiš* MUNUS.PEŠ$_4$
>
> It is said *with regard to* the pregnant woman. (Because) $^{\mathrm{na4}}$iškila (means) 'shell' (Akk. *ṣillatu*). Secondly, (it means) 'mother.' Thirdly, (it means) 'pregnant woman.'

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he send the pregnant woman"). The word *umma* introduces a paraphrase of the previous citation from the source text, based on the given explanation (see Gabbay, *The Exegetical Terminology*, 195–97).

[128] For *ṭurdī* or *ṭurridī*, G/D imp. fem. sg. of *ṭarādu*.

[129] For *ṭarādu* in connection with sending boats, see further CAD Ṭ, 56f. sub 1e.

[130] For the metaphorical association between the death of a woman in labor and the sinking of a fully laden boat see also the apodosis of an Old Babylonian extispicy text (U. Jeyes, *Old Babylonian Extispicy. Omen Texts in the British Museum* (Istanbul: Nederlands Historisch-Archaeologisch Instituut te Istanbul, 1989), 97 No. 1: 6), which gives these two alternative interpretations to an omen: *eleppum*($^{\mathrm{giš}}$MÁ) *malītum iṭebbu u erītum ina alādīša imât* (BA.UG$_5$).

[131] For the sun god's connections with birth see the discussion in J. Polonsky, "The Mesopotamian Conceptualization of Birth and the Determination of Destiny at Sunrise," in *If a Man Builds a Joyful House: Assyriological Studies in Honor of Erle Verdun Leichty*, ed. A. K. Guinan et al. (Leiden/Boston: Brill, 2006), 297–311. Here, especially the sun god's cosmic journey and the notion of sunrise as the god's emerging from the netherworld is paralleled with the baby's trip from the darkness of the womb into the daylight.

> **11N-T3: 39–40**
> *ana* MUNUS.PEŠ$_4$ *iq-ta-bi* : ^{na4}iškila (ŠÀ×A) : *ṣi-il-la-tum* : na$_4$: *a-ṣu-u šá ze-rù* / a : *ma-ra* : šà : *lìb-bi* :
>
> It is said with regard to the pregnant woman. (Because) ^{na4}iškila (means) 'shell' (*ṣillatu*); na$_4$ (means) 'to come out,' (said) of seed (offspring); a (means) 'son'; šà (means) 'belly/womb.'[132]

The first part of the philological analysis is identical in both commentaries: The metaphoric meaning of the keyword *išqillatu* "shell" of the source text is explained, it refers to the pregnant woman. Next, the commentator continues to explain the philological basis for the connection, via the polysemous meaning of logograms. Thus, the word iškila "shell"[133] (Akk. *išqillatu, ṣillatu*) is written with the same sign PEŠ$_4$, as in MUNUS.PEŠ$_4$ "pregnant woman." It follows that the shell is the stone of pregnancy, because it resembles the pregnant woman (a body with water/child inside it).[134] Then the commentator of U. 30654 elaborates the metaphoric connection by pointing out two other meanings of peš$_4$, i.e., "pregnant woman" (written MUNUS.PEŠ$_4$, Akk. *erītu*) and Akkadian *ummu* "mother," the latter of which is not the usual equation for PEŠ$_4$, but posits a link with the envisaged outcome of the birth ritual, i.e., to produce a mother. The commentator of 11N-T3 proceeds in a different way to establish the metaphoric link between the shell and the birth situation, by analysing the components of the logogram ^{na4}PEŠ$_4$, which consist of the simple signs NA$_4$, ŠÀ and A. Two of his Sumerian-Akkadian equations are well-known from the lexical tradition: Sumerian a is Akkadian *māru* "son," and Sumerian šà corresponds to Akkadian *libbu* "belly; womb." His third equation for na$_4$ as *aṣû* "to come out" (said of seed) seems to be made up ad hoc to serve the commentator's needs, as it cannot be supported by lexical evidence.

A second central topic of the commentaries under study is to establish links between the ingredients used in the ritual and the ritual's participants, i.e., the woman in labor and the baby. The commentary from Nippur contains interesting examples of this kind of hermeneutics. The source text for the commentary passage chosen as illustration, a bilingual birth incantation, is not well preserved in the compendium BAM 248. But fortunately we know of several Old Babylonian manuscripts containing varying versions of the source text. The text passage stems from a section of the incantation that is the called "The

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132 See also Frahm, *Babylonian and Assyrian Text Commentaries*, 241; Gabbay, *The Exegetical Terminology*, 234.

133 na$_4$ is the classifier for minerals, literally meaning "stone."

134 See Stol, *Birth in Babylonia*, 51f.

Marduk-Ea-dialogue," a classic feature of Sumerian (and Akkadian) incantations. In this dialogue, the god Ea instructs his son how the problem is to be solved and what the treatment for the patient should be. Thus, the incantation at the same time contains the ritual to be performed on the patient:

> **AUAM 73.3094, M. E. Cohen, RA 70 (1976): 133ff. rev. 4′–8′, 13′, 15′**
> gi sú-ug bàn-da (Var. gi ambar) eri$_4$-du$_{10}$-ga šu [ù-me-ti] /
> *qá-na-a ša sú-ug-bàn-da ša Eri$_4$-du$_{10}$-ga i-na* [*le-qí-i*]
> ia-ab-kù-ga ga-ra-ab-ši-il-la-ma šà-ba [ù-me-ni-dub] /
> *ša-ma-an li-it-tim el-le-tim li-iš-da-am* [*ina libbi*] *šu-pu-uk*
> saḫar sila-⸢limmu$_2$⸣-bi
> *e-pé-er su-qí er-bé-e*[*t*]
> …
> […]-*e mi-it-ḫa-ri-iš bu-*⸢*ul*⸣*-li-il* ⸢x⸣[(…)]
> …
> [*e-li a-bu-un-na-ti*]*-ša ḫe-pé-e-ma*
>
> [Take] a small reed from the marsh of Eridu (Akk. When [(you) have taken] a reed from the "small marsh of Eridu"),
> [Pour into it] the (milk) fat of a pure cow and the cream of a mother cow, dust from a crossroads
> …
> … mix together …,
> …
> break it [above] her [navel]![135]

In the Nippur commentary, the key objects of the ritual therapy to be performed for the woman in labor are interpreted and explained by analyzing the signs and syllables used to the write the key words (a technique called *notarikon* by the Greeks and well-known in Rabbinic scholarship),[136] again drawing connections to the woman in labor, the baby and the birth situation. The first object that is analyzed in this way is the "small reed from the marsh of Eridu" (AUAM 73.3094 rev. 4′–5′):

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[135] A similar ritual instruction is found in BAM 248 i 52f. //, attached to an Akkadian incantation for a woman in difficult labor ([KA.INIM.MA] MUNUS LA.RA.AḪ.A.KÁM): [DÙ.DÙ.BI *ina* ŠÀ] [^{gi}]⌈SAG⌉.KUD GI DU$_{10}$.GA Ì.GIŠ *ta-tab-bak* / [ÉN 7 *u* 7-*šú*$^?$ *ana* ŠÀ Š]ID$^?$-*nu ina* UGU ŠÀ-*šá* GAZ-[*ma*$^?$] *šèr-ru uš*-[*te-šer*]-*ra* "[Its ritual.] You pour oil [into] a hollow reed straw (taken from the) 'sweet reed', you recite [the incantation seven] and seven times into (the reed), (then) you break it above her belly [and] the child will come straight out." Cf. also the ritual in BAM 248 iii 46–53, where dust and oil are filled into a reed, with which the woman's belly is massaged (Stol, *Birth in Babylonia*, 69; cf. Scurlock, *Sourcebook*, 596, 598).

[136] See Frahm, *Babylonian and Assyrian Text Commentaries*, 72, 358–60, 373 *passim.*

> gi èn-bar bàn-da šu u-me-ti : gi : *sin-niš-tim* : bar : *a-ṣu-u* : bàn-da / *še-er-ri* : *ṣa-aḫ-ri* :
>
> (In) gi èn-bar-bàn-da šu u-me-ti ("Take a small reed from the marsh") : gi ("reed") means 'woman'; bar (the second element of the word èn-bar "marsh") means 'to come out'; bàn-da ("small") means 'baby' (or) 'little one.'[137]

The commentator first cites the Sumerian phrase gi èn-bar bàn-da from his base text, which included the orthography èn-bar representing the word ambar "marsh." The logographic writing ambar is encountered in one Old Babylonian manuscript, whereas most of the contemporaneous sources for this incantation use the synonym sug (written sú-ug in the cited manuscript). Then the commentator re-analyses some of the component syllables in the key phrase as logograms, providing their meaning through Akkadian translations. While some of the Akkadian equivalents for the posited Sumerian words are well known from lexical and bilingual texts, other equations imply fanciful derivations. For instance, Sumerian gi is not explained with Akkadian *qanû* "reed," as would be expected from the bilingual source text, but posits the meaning "woman," unknown from lexical texts. The equation may be based on the fact that gi means "woman" in the Emesal dialect, but is also equated with *lamādu ša zikri u sinništi* "to learn about man and woman" (i.e., to experience intercourse) in a medical commentary from Uruk (SpTU 1, No. 36: 23f.).[138] It is striking to see that the commentator skips the element èn that occurs next in the source text (which did not render glosses serving his purposes), but instead turns to provide Akkadian equations for the Sumerian words/elements bar and bàn-da, the latter of which is provided with the usual translations *šerru* "baby" and *ṣeḫru* "little one; child." The equation bar = *aṣû* "to go out" seems to rely on associations from lexical traditions.[139]

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[137] 11N-T3: 8–9, Civil, "Medical Commentaries from Nippur," 332.

[138] Cf. Cavigneaux, "Aux Sources du Midrash," 253 who points out a parallel substitution of gi "reed" and "(young) woman" and mu "wood; tree" for "man; penis" in Sumerian liturgical texts in the Emesal dialect, which is based on analogical associations of objects from the flora with the male and female genitals; see also M. K. Schretter, *Emesal-Studien. Sprach- und literaturgschichtliche Untersuchungen zur sogenannten Frauensprache des Sumerischen* (Innsbruck: Inst. für Sprachwiss. d. Univ. Innsbruck, 1990), 185f. 217–19 sub no. 153, 266, 272 pointing out the equation of Emesal gi(-e) and ki-sikil "young woman" and of Emesal mu with ĝeš "wood; staff" and ĝìš "penis," also equated with Akk. *eṭlu* "man."

The commentator applies a similar procedure to his analysis of the next ritual ingredient, milk fat from a cow, Sum. ì, Akk. *šamnu* (cf. AUAM 73.3094 rev. 6′–7′):

> *šá-am-nu* : $^{\text{ni-ig}}$GAR : *sin-niš-tì : am : ze-ri* : nu : *ba-nu-u šá-niš* $^{\text{i}}$NI / *šá-am-nu* : i : *a-ṣu-u šá* NUMUN :
>
> (In) 'fat' (*šamnu*), *šá* (the sign GAR read as níg) means 'woman'; *am*(*mu* "people") means 'seed'; nu (means) 'to create.' Another (explanation): (the sign) NI, read i, means 'fat'; i (means) 'to come out,' (said) of the seed.[140]

Our commentator proceeds by analyzing the component signs in *šá-am-nu* "fat." The first sign ŠÁ can also be pronounced as Sumerian níg, which is here equated with Akkadian *sinništu* "woman," an unexpected correspondence.[141] The following equation establishes the rare Akkadian word *am*(*mu*), here written in an abbreviated fashion, as a synonym to *zēru* "seed," also known from a lexical list.[142] The next equations are likewise well known: Sumerian nu can mean *banû* "to create." But the commentator does not stop there; he supplies further associative equations bolstering the posited links. Thus, the element nu brought about the association with the sign NI, which yields the standard Sumerian reading ì = *šamnu* "fat/oil," thus going a full hermeneutic circle. Last but not least, all this made the commentator think of the homophone i (a phonetic variant of Sum. è), which means "to come out" (*aṣû*), said of "seed" (numun, *zēru*).

To complete this sample of scholarly source text analysis, let us summarize how the commentary deals with the last ingredient of the ritual, which is also frequently found in the 1st millennium BCE sources, dust from a crossroads, in Sumerian saḫar sila-limmu (written sila-lam$_4$-ma in the commentary). On the one hand, the commentator proceeds again by splitting up this phrase into syllables, which are then understood as Sumerian or Akkadian words relevant to the subject (*la'û, ṣeḫru* "child," *ammu, zēru* "seed, offspring" and *ešēru* "to come straight forth").[143] On the other hand, his comment on saḫar "dust" yields the phonetic association with Akkadian *ṣaḫar* "baby; small one" (11N-T3: 9–10; Gabbay 2016, 93):

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[139] Cavigneaux, "Aux Sources du Midrash," 253, citing CAD A/ii, 335 and CAD A/i, 210a.

[140] 11N-T3: 11–12.

[141] Cf. Cavigneaux, "Aux Sources du Midrash," 253, for possible connections.

[142] See Cavigneaux, "Aux Sources du Midrash," see *malku* = *šarru* I 158 (I. Hrůša, *Die akkadische Synonymenliste malku = šarru*, 40, 311).

> saḫar sila^{la} : saḫar : *e-pe-ri :* sa-ḫar *u ṣa-ḫar iš-ten-ma* / sila-lam$_4$-ma : si : *e-še-ri šá a-la-ku* : la : *la-a* : *ṣa-ḫar* : *am-ma* : *ze-ri*
>
> (In) "dust (saḫar) from the street (sila)," saḫar means 'dust.' "Dust" (saḫar) and 'baby' (*ṣaḫar*) are one and the same (phonetically). (In) "crossroads" (Sum. sila-lam$_4$-ma), si means 'to be straight' said of 'going'; la means 'child' (*la'û*, which means) 'little one'; and "people" (*ammu*, written *am-ma*) means 'seed.'

The concluding comment on the ritual instruction "you break it (the reed) above her navel" provides an explanation for this ritual action by proposing a link between the action of breaking a reed over the woman's navel and the cutting of the umbilical cord of the baby (with a sharp reed), since the words LI.DUR / *abbunnatu* mean both "navel" and "umbilical cord." The commentator included another subtle link in his explanation "the umbilical cord is the cord (*riksu*) of man," because the element DUR in LI.DUR corresponds to *riksu* in Akkadian (11N-T3: 12–13):

> *e-li* LI.DUR-*šú ḫe-pi-ma aš-šum* GI / *na-ki-is ab-bu-un-na-ti : ab-bu-un-na-tú ri-ik-si šá* LÚ *ši-i*
>
> 'Break (it) above her navel': (it is said) because the reed is the cutter of the umbilical cord; the umbilical cord is the cord of man(kind).[144]

To sum up, the two commentaries on the birth compendium show that the scholars had a clear understanding of the metaphors of birth found in incantations, even though they simply explain that one word stands for another, but do not use a technical term "metaphor" for this exchange or transfer of concepts. Moreover, the commentators use several hermeneutic techniques including the creative employment of metaphoric associations to give the source text additional levels of meaning and to link objects and ideas of the text in a network of meaning, employed for the aim of the ritual: to make a woman give birth to her baby. The commentaries thus underpin the incantations/rituals. The two commentaries have also confirmed that the metaphors of birth remained relatively stable over the long period of transmission, composition and use of Mesopotamian birth incantations, which indicates that they were deeply entrenched in cultural systems of thought, since they also feature as motifs in the broader literary tradition. On the other hand, we can see that the basic features of the cuneiform writing system (the polysemy of logo-syllabic signs) and the bilingualism of cuneiform scholarship stimulated the extension of metaphoric associations beyond those provided by textual traditions.

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[143] The commentary provides similar explanations for the ritual objects "hailstone from heaven," "dust from the top of a city wall," and "dust from a streaming drainpipe" (cf. BAM 248 iii 7–8, 11N-T3: 46–51; Civil, "Medical Commentaries from Nippur," 332; Cavigneaux, "Aux Sources du Midrash," 255; Scurlock, *Sourcebook*, 352–54, 597.

[144] See also Gabbay, *The Exegetical Terminology*, 164.

5 Conclusion

The metaphors for the womb and female reproductive organs encountered in Mesopotamian languages and texts are, at the same time, based on common human bodily experiences and embedded in the cultural network of ideas and practices. The medical texts employ a systematic set of interrelated metaphors, some of which are very common cross-culturally and are grounded in basic (universal) conceptual metaphors, such as THE BODY IS A CONTAINER. On the other hand, the concrete object chosen as donor concept for a particular metaphoric expression can be culture-specific. Thus, in Mesopotamia the pottery oven serves as a donor object, in Greece it is a bread oven. The variation is partly due to the underlying models of procreation and physiology prevalent in each culture: The pottery oven corresponds to a model of fetal development based on the mythological analogy of creating humanity from clay, the bread oven is linked with the idea of transformative physiological processes as "cooking" central to Greek medicine. On the other hand, the Mesopotamians compared the process of fetal growth in the womb to fermenting and rising sourdough. The donor objects used for the womb metaphors in each case provide links to technological models for bodily processes such as conception and gestation, which can also be culture-specific. On the other hand, the multiple metaphoric instantiations of one basic metaphor reveals the extension processes often observed in metaphor research. Thus, the house and container metaphors of the womb are realized in multiple instantiations by choosing similar objects in the donor field (animal stall, house, sleeping chamber; waterskin, oven, etc.).

Moreover, the landscape metaphors for the womb based on an analogy between body and the cosmos/nature are also intimately linked with cultural models of conception and gestation, as well as other physiological processes.

Thus, the womb as a field or meadow connects with agricultural models of procreation revolving around the analogy between semen and plant seeds, whereas the imagery of rivers and canals is related prominently with body fluids discharged from the womb (bleeding and loss of amniotic fluid).

Concepts of the female physiology of reproduction encountered in Mesopotamian texts have revealed the existence of different models and metaphors, each of which serves to capture a different aspect of bodily and cultural experience. These models can present contrastive views of a process. Conception, for example, was understood according to two different models: one describing the woman as a passive receptacle for the male semen, whereas in the alternative model she also contributes fluids / semen which mingles with the male semen. Thus we have seen that quite contrary to conclusions in previous studies, the female body/womb was regarded as an active participant in procreation, credited with creativity and the ability to produce, not only in conception, but more so during gestation, which was explained through analogies with the earth and the growth of plants as well as through craft metaphors (bread and beer making; shaping clay and baking bricks/pottery; casting metals). Moreover, women giving birth were compared with warriors in Mesopotamian sources, attaching a positive evaluation to delivery as an activity in which women could be equal with men (fighting; bravery) and in which they could be prone to suffer the same fate: to lose their lives. Thus, the Mesopotamian sources express a model of reproduction and gender relations, in which both sexes are complementary.

Last but not least, this study has illustrated that body metaphors are important tools in medical theory and practice. They serve as models to talk about the body and to make sense not only of abnormal, but also of normal physiological processes. Thus, metaphors play an important role in shaping medical knowledge about anatomy and physiology, but at the same time serve to formulate therapies by applying the same metaphors, thus providing links between bodily processes and employed *materia medica*.

The research presented here confirms the mutual interrelation between bodily experience, metaphor and culture. Thus, a crucial reason for the cross-cultural importance as well as similarity of body metaphors is that they are connected to experiences of the body-self and the world with which it interacts, as well as to pan-human aspects of embodied cognition. On the other hand, culture mediates these experiences, providing models according to which metaphors are shaped and modulated to yield cross-cultural variations in the linguistic instantiations of metaphors that express these shared experiences. Thus, the survey of the Mesopotamian metaphors for conception and gestation has shown that the female body is represented as a "productive" body, and that reproduction is seen in analogy to craft production, i.e., cultural activities connected to daily life. Among the crafts chosen as donor fields for these metaphors, especially brewing and pottery were traditional domains of household production, often performed by women. This link with areas of female expertise is also expressed in mythology, in the early Sumerian craft and birth goddesses. The second prominent aspect evident in the metaphors of the female body is the use of analogies comparing physiological processes with processes in the environment, which humans have learned (at least partially) to control and regulate through culture. Especially in the metaphors drawing on different activities from agriculture and animal husbandry including water management and irrigation, the female body, its fertility and physiology is interpreted and regulated according to the experiences and practices of the human-environment interaction (applying a model of the body that I termed "the body technologic"). The study of body metaphors in Mesopotamian medical texts is a topic to be further pursued by future research, as it will prove crucial in elucidating the concepts of physiology of the human body that dominated ancient medical theory and practice, as metaphors that both the practitioners and their patients "lived by."

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CHAPTER 10

Pure Life: The Limits of the Vegetal Analogy in the Hippocratics and Galen

Brooke Holmes

The analogy of human beings to plants is widespread in ancient medical and biological writing, clustering, in particular, in embryological texts. But the stakes of the analogy and what it makes visible are raised, as more attention is paid to vegetal life as an ontological category in Plato and especially in Aristotle: are we simply like plants, or are we, in some critical way, plants ourselves? In this chapter, I closely examine the plant analogy in the Hippocratic embryological writings and in Galen's embryological corpus. I argue that already in the Hippocratic material we can begin to see an interest in vegetal life as defined by the capacity to attract nutriment and, thus, to sustain life. In Galen, this self-nourishing form of life comes to define the human at the earliest stage of its development, even as the nature of plant life remains obscure.

1 Introduction

It is a widespread view in ancient Greco-Roman medicine and philosophy that before we are born, we are like plants. From our earliest Hippocratic embryological texts to Galen's writings on the subject, plants recur time and again to support the imagination of the development of early human life. The sprouting of the seed, the ramification of a young oak, the growth of a cucumber in a jar, the fruiting of a grafted tree—these are all observations from the vegetable kingdom that we find writers on embryology deploying in order to describe, and in describing to prove, what is happening inside the belly of a pregnant woman.

We may in fact *be* plants, at least in some fundamental way, at some point in our development. The status of the fetus and the embryo on the scala naturae was a subject of differing opinions in antiquity, as it is today, especially after Aristotle's taxonomic ordering of plant, animal, and human on the basis

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of different orders of soul.[1] There were those who held that the embryo was an animal, perhaps a sleeping animal. Others, however, insisted that the embryo was, from an ontological perspective, vegetal. Aristotle describes life in utero as the life of a plant; the Stoics believed that human beings are vegetal until the moment of birth, when proper respiration begins, the soul comes into being, and the fetus-plant crosses the threshold to the animal.[2] Others, most notably Galen, viewed development in the womb as proceeding by stages—from plant to mollusk to animal.[3]

What is at stake in defending the vegetal nature of embryonic life or even of postnatal aspects of human life, such as digestion and growth? Do these types of ontological claims radically change the common ground of analogy, or do they simply extend an analogy between plants and people that, in the form of a comparison between the womb and the earth, arguably predates even the Hippocratic texts?[4] In this essay, I argue that in the hands of the author of the classical-era embryological texts *On the Seed* and *On the Nature of Child* and

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[1] Any discussion of development in utero in Greek texts is complicated by difficulties in translation, reviewed in detail at V. Boudon-Millot, "La naissance de la vie dans la théorie médicale et philosophique de Galien," in *L'embryon: formation et animation*, ed. L. Brisson, M.-H. Congourdeau, and J.-L. Solère (Paris: Librairie philosophique J. Vrin, 2008), 87–88. My default reference will be to the embryo (typically third to ninth week; in the first two weeks specialists speak of the "blastocyst") rather than the fetus, given that for gradualists, the vegetal phase is earliest. In contexts where it is clear the fetus, in our sense (typically from the ninth week onwards), is implied, I use that term. Note, however, that "embryo" here does not translate the Greek *embruon*, which correlates best with our "fetus" (sometimes also referred to as the *paidion*, "child") but, rather, *to kuomenon* or *to kuēma*.

[2] See Arist. *Gen. an.* 2.3, 736b13 (πρῶτον μὲν γὰρ ἅπαντ' ἔοικε ζῆν τὰ τοιαῦτα φυτοῦ βίον; cf. 5.1, 779a1–2); for a detailed discussion of the Stoic arguments see J.-B. Gourinat, "L'embryon végétatif et la formation de l'âme selon les Stoïciens," in *L'embryon: formation et animation*, ed. L. Brisson, M.-H. Congourdeau, and J.-L. Solère (Paris: Librairie philosophique J. Vrin, 2008), 59–78. For Porphyry, see *Ad Gaurum* 1.1, 3.2–3.5, and *passim*.

[3] For Galen's gradualism and the paradigm in other sources, see A. E. Hanson, "The Gradualist View of Fetal Development," in *L'embryon: formation et animation*, ed. L. Brisson, M.-H. Congourdeau, and J.-L. Solère (Paris: Librairie philosophique J. Vrin, 2008), 95–108.

[4] For the continuity between the vegetal analogy in *On the Child/On the Nature of Child* with a larger and very old cultural tradition of seeing the female body in terms of earth or field, see H. King, "Making a Man: Becoming Human in Early Greek Medicine," in *The Human Embryo: Aristotle and the Arabic and European Traditions*, ed. G. R. Dunstan (Exeter: University of Exeter Press, 1990), 10–19; P. Dubois, *Sowing the Body: Psychoanalysis and Ancient Representations of Women* (Chicago: University of Chicago Press, 1988). On the notion of "seed" in the Hippocratic treatise in relation to Aeschylus's *Eumenides*, see F. Giorgianni,

Galen, the vegetal analogy promises at least two ways in which plants make a form of life visible. On the one hand, plants enact processes of growth and nutrition out in the open, where they can be easily observed and, indeed, manipulated. Their availability to vision and intervention makes them ideal analogues of the hidden embryo, even for Galen, who routinely cut open pregnant animals for the purposes of anatomical inquiry. On the other hand, insofar as plants participate in only the most basic form of life or soul, which Galen calls nature (after the Stoics), as well as desiderative and nutritive soul (after Plato and Aristotle, respectively), they exhibit a form of being that is uncomplicated by animal and rational faculties. Aristotle writes that plants make manifest (φανερόν) the lowest form of soul.[5] Galen speaks in *On the Formation of the Fetus* of hoping to find in plants a way of organizing life that is "pure and unadulterated" (εἰλικρινῆ καὶ ἀνόθευτον).[6] The identification of a soul or way of life that is "nutritive" or "nature" means a plant remains an example, an analogue. Yet by attending to the different dimensions of its capacity to make visible, we can see how a certain amount of ambiguity, even in the earliest vegetal analogies, about just how alike plants and embryos are eventually gives way to a commitment, in Galen, to seeing plant life as imposing a limit on life in utero.

The arc of the vegetal analogy maps easily onto a diachronic story. Galen inherits a rich philosophical tradition of thinking about the ontological differences between plants, animals, and humans that, although we have scraps of Presocratic thinking on these issues, largely postdates the embryological texts in the Hippocratic Corpus.[7] The post-Aristotelian legacy, marked above all by the denial of perception and sensation to plants, radically changes the stakes of plant analogies, such that they become claims about the most minimal form of viable life. Yet we should be careful about underestimating the vegetal analogy in *On the Seed/On the Nature of Child*, especially as it is developed in the so-called botanical excursus. The common ground of the excursus already seems to encompass participation in processes and powers that will, with Aristotle but especially with Galen himself, become at least partially aligned with the

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Hippokrates, Über die Natur des Kindes (*De genitura und De natura pueri*) (Wiesbaden: Ludwig Reichert Verlag, 2006), 63–64.

[5] Arist. *De an.* 2.2, 413a31–33.

[6] Gal. *Foet. Form.* 3.14 (5.665–66 Kühn, 68,21–23 Nickel).

[7] We owe most of what we know about Presocratic opinions about plants to the pseudo-Aristotelian *De plantis*, a text now believed to rely largely on a lost treatise by Aristotle on plants as well as material from Theophrastus: see esp. *De plantis* 815a15–16 and b16–17, with H. J. Drossaart Lulofs, "Aristotle's Περὶ φυτῶν," *Journal of Hellenic Studies* 77 (1957): 75–80. For an overview of Presocratic opinions, see L. Repici, *Uomini capovolti: le piante nel pensiero dei greci* (Rome: Editori Laterza, 2000), 45–88; and also n. 24 below, on Empedocles.

vegetal or "nutritive" life, notably the capacity to attract nutriment that is appropriate to or like the plant. In the Hippocratic text, then, the plant is already richly exemplary.

I have been speaking of plants as vehicles of visualization and clarity in medical, especially embryological writing. Yet at the same time, ancient writers could see the life of plants as mysterious and hidden, from the elusive moly whose nature Hermes reveals to Odysseus in the tenth book of the *Odyssey* to Aquinas' claim that "the life in plants is hidden" (*vita in plantis est occulta*).[8] The paradoxical status of plant life as at once nakedly visible and simple *and* occult and mysterious has made plants a site of renewed interest in contemporary philosophical thinking and scientific research alike.[9] Such doubleness, I suggest, also made plants an important site for investigating and imagining processes of organic life in ancient writers, especially in instances where such life is seen as quasi-mindful. In what follows, I first trace how local claims regarding the likeness between trees and the embryo are implicated in a larger investment in plants as paradigms of embryonic development in the Hippocratic text *On the Seed/On the Nature of Child*, before turning to the imbrication of analogy in broader ontological claims in Galen's embryological texts.

2 Root and Branch: Plants in *On the Seed/On the Nature of Child*

The Hippocratic treatises *On the Seed* and *On the Nature of Child* represent the most coherent body of classical-era (fifth to fourth century BCE) embryological material. The two texts are likely to be by the same author, who is also conventionally credited with *On Diseases* IV. All three texts are rich in analogies, but scholars have often pointed out the author's special predilection for thinking analogically with plants.[10] Analogies between plants and the developing embryo appear early in *On the Seed*, becoming more complex, dense, and elaborate in *On the Nature of Child*. These analogies unfold along a couple of main axes.

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[8] Hom. *Od.* 10.302–06; Aquinus Q.LXIX, A2.

[9] For recent philosophical interest in plants, see E. Miller, *The Vegetative Soul: From Philosophy of Nature to Subjectivity in the Feminine* (Albany: State University of New York Press, 2002); M. Hall, *Plants as Persons: A Philosophical Botany* (Albany: State University of New York Press, 2011); M. Marder, *Plant-Thinking: A Philosophy of Vegetal Life* (New York: Columbia University Press, 2013). For current research on plants, esp. by plant biologists interested in challenging the neuro-centric emphasis on animals and humans, see D. Chamovitz, *What a Plant Knows: A Field Guide to the Senses* (New York: Scientific American, 2012).

[10] E.g., Jouanna observes that in these texts "les comparaisons entre l'homme et les plantes ont une fréquence et un ampleur inaccoutumées." J. Jouanna, *Hippocratis De natura*

First, the analogies target the role played by the uterine environment in the growth and health of the fetus, likening this environment to the conditions under which plants develop. The simplest version is found in Chapter 9 of *On the Seed*. Discussing how fetal development is affected by the size and shape of the uterus, the author describes what happens to a young cucumber, finished flowering but still growing, that is moved from the soil to a narrow vessel. The plant grows in such a way so as to accommodate itself in size and shape to the limited dimensions of the vessel. In a similar way, if it is moved to a vessel only slightly larger than the size of a normal cucumber, the plant again accommodates itself to the space, or tries to, "rivaling [ἐρίζει] the space in which it grows." "It is generally true," the author concludes, "that all plants will grow in the way one compels them to."[11] The next chapter yields another vegetal analogy. Here, the point is that a constriction in one area of the womb can obstruct fetal development. The fact that a tree's growth can be compromised if it is hemmed in by a stone is adduced to demonstrate the point.[12]

Both the cucumber and the tree make visible the relationship between form and the conditions under which the living thing develops. In the case of the tree, in particular, its capacity to manifest this relationship is due not only to the fact that it lies outside the body and so belongs to a public field of vision, as is so often the case with the objects of Hippocratic analogies. It is due, too, to the fact that it bears the imprint of an environment to which it remains tethered. The tree can be observed in situ, growing twisted around the stone whereas, before the age of fetal imaging, the fetus cannot, insofar as the conditions of its visibility require it to exit the space within which it developed. The relationship between the uterine environment and fetal development is taken up at greater length in the botanical excursus of *On the Nature of Child*. Before looking at the excursus, however, I would like first to briefly consider another way in which the author uses the development of plants and, more specifically,

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hominis, rev. ed. CMG I 1,3 (Berlin, 2002), 267. For vegetal analogies in Hippocratic embryology, see also *Oct*. 3.7 (7.458 Littré, 86,18–22 Grensemann). On the author's extensive use of analogy, with helpful remarks on the analogies as both indicative of general laws and illustrative, see I. M. Lonie, *The Hippocratic Treatises "On Generation," "On the Nature of Child," "Diseases IV"* (Berlin: de Gruyter, 1981), 77–87.

[11] *Genit./Nat. puer*. 9.3 (7.482 Littré, 51,2–12 Joly).

[12] *Genit./Nat. puer*. 10.1 (7.484 Littré, 51,13–19 Joly). Cf. Theophr. *Hist. pl.* 1.6.4.

trees to support the visualization of the growing fetus—namely, to describe the articulation of the body into parts.

The author has already described the first formation of flesh through the coagulation of maternal blood, when he turns to the embryo's articulation under the influence of breath (ὑπὸ τοῦ πνεύματος ἀρθροῦται).[13] The bones harden and begin to branch out "like a tree" (ὡς δένδρεον).[14] But the analogy is limited, without jurisdiction over the processes of articulation that the author continues to describe (the projection of the head and the limbs, the appearance of sinews around the joints, the opening of the mouth and the formation of the face, the emergence of genitals, the separation of passages and parts within the cavity). Indeed, when the author wishes to illustrate the developmental process after the ramification of the bones, he privileges the principle of "like to like," proposing an experiment to the reader that involves a bladder filled with water and earth, sand, and lead filings that eventually migrate to their own kind.[15] The tree does not return for two more chapters, until again the bones are said to "branch" at their tips into fingers and toes, just as the tips of tree branches shoot forth twigs.[16] The language of "branching" and also "rooting" (with reference to the nails and hair) returns at the end of the articulation process, after which the fetus begins to move.[17] In the initial discussion of embryonic development, then, the tree appears intermittently and in a mode that leaves open whether its development merely gives a vivid parallel to what is happening to the embryo, or in fact is driven by the same causal forces. To the extent such forces can be located behind the development of the tree, they are not framed as specific to trees or other plants but are equally visible in the behavior of lead filings and particles of earth.

Plants emerge, however, as crucial figures for charting embryonic development at Chapter 22, the beginning of the so-called "botanical excursus," at whose close, some five chapters later, the author will write emphatically, "if you review what I have said, you will find that from beginning to end the process of growth in plants and in humans is exactly the same [ἐξ ἀρχῆς ἐς τέλος εὑρήσει τὴν φύσιν πᾶσαν παραπλησίην ἐοῦσαν τῶν τε ἐκ γῆς φυομένων καὶ τὴν ἀνθρωπίνην].”[18] The author here implies that plants or trees are not simply relevant at isolated moments in embryonic development. Rather, he posits their growth as tracking that of the embryo, presumably making them important resources for narrating this hidden story.

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[13] *Genit./Nat. puer.* 17.1 (7.496 Littré, 59,9–10 Joly).

[14] *Genit./Nat. puer.* 17.2 (7.498 Littré, 59,17 Joly).

[15] *Genit./Nat. puer.* 17.4 (7.498 Littré, 60,8–18 Joly). The experiment is discussed at length at Lonie, *The Hippocratic Treatises "On Generation," "On the Nature of Child," "Diseases IV,"* 183–86, who also reviews earlier interpretations. Aristotle critiques the account of embryonic growth via the like to like principle at *Gen. an.* 2.4, 740b12–19.

[16] *Genit./Nat. puer.* 19.1 (7.506 Littré, 64,12–15 Joly).

[17] *Genit./Nat. puer.* 21.1 (7.510 Littré, 67,1–2 Joly).

Nevertheless, in the excursus itself, it is not entirely clear how closely the development of a plant from a seed mirrors that of the embryo. The extended section is motivated by a narrower analogy between soil and the uterine environment, rather than in the ramifying growth alluded to in earlier chapters. Despite the fact that the account proceeds to spin off into a long discussion of plant growth, not only under normal conditions but also in grafted plants, it is not evident that every point of detail is meant to correspond to embryonic development. The author himself suggests a divergence between the two halves of the analogy when, as the excursus draws to a close, he concedes, “I have said so much about trees and their fruit, since I could not leave my account incomplete.”[19] The account of trees appears to take on a life of its own, unbound to analogical parallelism. I. M. Lonie has raised similar worries about the pressures of disanalogy and digression in the excursus, leading him to question whether the excursus even qualifies as an analogy at all. He ends up reading the passage more as an exercise in showing “that the same sort of explanation can be successfully applied in different provinces of nature.”[20]

Lonie’s transference of the excursus to the general realm of nature is too extreme. It is true that the excursus has implications exceeding the initial plan of explicating the role of the uterine environment. But these implications arguably end up enfolding trees more snugly into embryology. Most important, the excursus provides a rich explanatory framework that can be read back into the tree’s process of branching. Despite differences between the account here, where the branching process is driven by the movement and accumulation of moisture in the tree, and the account of the articulation of bones in the embryo, where the driving force is breath, the excursus ends up describing a process for the tree that is sufficiently similar to the process for the embryo, so as to imply that the earlier comparison of branching bones and branching tree limbs is more than a superficial likeness and instead a resemblance grounded in common processes.[21] Then again, the focus of the excursus is not actually on branching processes but, rather, on nutrition. It is here, I suggest, that the tree offers a model that frames the self-sustaining attraction of like to like as characteristically vegetal.

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[18] *Genit./Nat. puer*. 27.1 (7.528 Littré, 77,4–7 Joly).

[19] *Genit./Nat. puer*. 26.5 (7.528 Littré, 76.22–24 Joly).

[20] Lonie, *The Hippocratic Treatises “On Generation,” “On the Nature of Child,” “Diseases IV,”* 213; cf. 83. Lonie continues: “Plants are less like animals than they are like each other, but, once this is granted, their process of germination and growth is intelligible in the same way and by the same methods; and indeed they offer some quite striking resemblances.” By contrast, I argue above that the plant even here models a particular form of life that is suggestive in the Hippocratic treatise and will become increasingly important.

The point that the author ostensibly wants to prove is that whether a child is healthy or sick depends on the nourishment she receives from the mother. His stated aim leads the reader to expect a discussion of how plants thrive or fail to thrive on the basis of the soil wherein they find themselves. But instead, we are given a lengthy account of normal plant growth. The theory rests on the assumption that the soil contains all kinds of "fluids" or "humors"—the author will use the same word, *ikmas*, to refer to humors within the human body—which allows it to nurture a wide variety of plants. The implications of the presence of a variety of fluids in the earth are less clear here than they are when the author offers another extended discussion of plants at the start of *On Diseases* IV, there as part of an explanation of how different reservoirs in the body attract different humors from the food being digested.[22] In the passage from *On Diseases IV*, certain humors are said to be akin to (κατὰ τὸ συγγενὲς) certain plants.[23] The plant is able to grow, on this account, because it succeeds in drawing up kindred humors from the soil.[24] If the plant is located in soil lacking its proper humor, it will fail to sprout, a principle that the author illustrates with the example of silphium, which was apparently notoriously impossible to transplant in Ionia or the Peloponnese.[25] The account in *On Diseases* IV gives considerable evidence to support the idea that the uterine environment may fail to supply the embryo with the right kinds of nourishment. By contrast, in the botanical excursus itself, we have little sense of the conditions of failure. Nevertheless, here, too, an important *Leitmotif* is the plant's capacity to attract nutriment that is proper to it from the soil.

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[21] *Genit./Nat. puer*. 24.1 (7.518 Littré, 71,10–13 Joly). See Lonie, *The Hippocratic Treatises "On Generation," "On the Nature of Child," "Diseases IV,"* 199–200 for the connection between Ch. 24 and the earlier discussions of branching. Lonie suggests that the author does imagine the extremities of bone to contain some moisture, deepening the similarity with the branching tree. It is of course true that we cannot rule out the possibility that breath or moisture would behave similarly in an inanimate body—that is, that the principle being described has, like the principle "everything that is heated acquires breath" (πάντα δὲ ὁκόσα θερμαίνεται πνεῦμα ἴσχει, *Genit./Nat. puer*. 12.2 [7.486 Littré, 53,11–12 Joly]), a very broad application extending beyond the world of animate beings.

[22] Lonie cautions against simply equating the theories that can be reconstructed from *Genit./Nat. puer*. 22–27 and *Morb. IV* 34 but concludes that they are essentially similar. I. M. Lonie, "On the Botanical Excursus in *de Natura Pueri* 22–27," *Hermes* 97 (1969): 396–99; also Lonie, *The Hippocratic Treatises "On Generation," "On the Nature of Child," "Diseases IV,"* 219.

[23] *Morb. IV* 34.1 (7.544 Littré, 85,25–86,7 Joly). See also *Nat. hom*. 6.3 (6.44–46 Littré, 180,8–14 Jouanna), where the capacity of plants to attract what is most akin is a model for the capacity of certain drugs to attract certain humors in the body; and the excellent parody of the general theory at Aristophanes, *Clouds* 232–34 (I owe this reference to Jouanna, *Hippocratis De natura hominis*, 267 *ad* 180,10).

[24] The closest non-Hippocratic parallel to the account here comes from passages gathered at Emp. (DK31) A70. Aët. 5.26.4 (Diels, *Dox. Gr.* 438) discusses how different flavors in plants

What is the nature of a capacity to attract nutriment? Recall the experiment with the bladder, where the various types of material (earth, sand, lead filings) congregate according to a like-to-like principle (τὸ ὅμοιον ὥς τὸ ὅμοιον), in a way that is posited as analogous to the formation of the embryo according to the clustering of dense parts, fluid parts, and so on, and the settling of different parts in their proper place (ἐς χώρην ἰδίην). Note that the parts are not endowed with any particular desire, as in a fragment from Empedocles where fire is said to rise up "in its desire to come to its like" (θέλον πρὸς ὁμοῖον ἱκέσθαι).[26] Nor is there any talk of attraction in either the description of em-

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are created by differences in soil. See also Plut. *Mor.* 688A: where plants preserve their nature unconsciously [ἀναισθήτως], drawing their appropriate nutrition from their environment. For the doxographical complications in the transmission of Empedocles' views on nutrition and desire, see D. Wolfsdorf, "Empedocles and His Ancient Readers on Desire and Pleasure," *Oxford Studies in Ancient Philosophy* 33 (2009): 7–46, though these do not bear in a significant way on the doctrine reported above. Though historians of medicine and philosophy have sought the source of the more general doctrine in *Genit./Nat. puer.* 22–27 not just in Empedocles but also in Diogenes, Anaxagoras, and Democritus, the evidence is inconclusive: see the reasonable conclusions of Lonie, *The Hippocratic Treatises "On Generation," "On the Nature of Child," "Diseases IV,"* 69, 237–39.

[25] *Morb. IV* 34.3 (7.546 Littré, 86,16–26 Joly). On silphium, whose use is extensively documented in the Hippocratic Corpus, see L. Totelin, *Hippocratic Recipes: Oral and Written Transmission of Pharmacological Knowledge in Fifth- and Fourth-Century Greece* (Leiden: Brill, 2009), 158–60.

[26] Emp. (DK31) B62.6; cf. B110.9 where things (presumably the roots) "desire to reach their own kind" (ποθέοντα φίλην ἐπὶ γένναν ἱκέσθαι). But how should we understand desire here? Presumably in a literal sense, as is emphasized by Wolfsdorf, "Empedocles and His Ancient Readers on Desire and Pleasure," 47–49, esp. 48. Wolfsdorf goes on to defend the position in C. W. Müller, *Gleiches zu Gleichem. Ein Prinzip frühgriechischen Denkens,* Klassisch-philologische Studien 31 (Wiesbaden: Harrassowitz, 1965), 27–42, esp. 31, where the desire of the roots is referred to as Love working through them, against the view at M. R. Wright, *Empedocles: The Extant Fragments* (New Haven: Yale University Press, 1981), 260–61, that the desire originates with the roots (2009: 51–52), though Wolfsdorf ultimately determines that the question of the motivations of the roots cannot be resolved on

bryonic growth or the experiment with the bladder. Rather, each part is simply said to "go" (ἔρχεται) to its like kind and to its proper place.[27] Is this much different from cases, such as the case of the plant or the body and its reservoirs at *On Diseases IV* 34, where the language of attraction might seem to create a stronger sense of what is active and what is passive? In order to answer this question, we need to reflect, first, on the capacity for attraction, before coming back to the like to like principle.

To begin, we should be cautious about attributing something like agency to the attracting part. For one thing, fluids move throughout the body in a wide range of Hippocratic texts by being attracted—"mechanically," we would say—into certain parts, especially those that are wide with a narrow mouth: the head, for example, attracts phlegm "like a cupping instrument."[28] The shape would seem to be what governs attraction in these instances, with little sense of the part (the head, say, or the uterus) desiring the fluids it attracts or making any effort to attract it. That the paradigm of attraction in these terms is the cupping instrument, which reappears, for example, in a similar and more extended discussion of attraction in *On Ancient Medicine*, puts the emphasis above all on the power inherent in the shape to attract rather than any other salient quality.[29]

Yet at the same time, in this example from *On Diseases* IV the head does not attract just any fluid but specifically phlegm, and other parts of the body, too, attract their respective humors (water goes to the spleen, blood to the heart, bile to the liver). Such attraction, then, is also governed by a relationship of kinship. But once again, by establishing this dimension of the attraction in play, we do not necessarily invest the attracting part with greater agency. Instead of attributing a form of agency to the head, say, we can see a significant cause of movement in the *relation* of likeness or kinship itself. The relation would be seen to exert pressure on two like elements or parts much as the superabundance of moisture causes the plant to branch. If we privilege the relation itself, perhaps we should conclude that there is no difference between a situation where the like to like principle involves attraction and one where different parts just "go" to one another.

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the basis of the existing evidence (54). It is more difficult to determine to what extent desire plays a role in the principle attributed by Simplicius to Anaxagoras at DK59 A41: τὰ συγγενῆ φέρεσθαι πρὸς ἄλληλα ("things that are akin move towards one another").

[27] The same language (ἐλεύσεται) is used in the experiment with the bladder: see *Genit./Nat. puer.* 17.4 (7.498 Littré, 60,12 Joly).

[28] *Morb. IV* 35.2 (7.548 Littré, 87,27–28 Joly).

[29] *VM* 22 (1.626–34 Littré, 149,1–152,17 Jouanna).

The problem is that the relation is not in fact sufficient in itself to bring two parts into contact. In all the instances we have been examining, contact is catalyzed by a source of movement, returning us to the question of whether the source of movement matters. In the experiment with the bladder, the parts are agitated by a force external to them (the water being shaken).[30] The question of external force is a little more complicated in the botanical excursus. In describing the initial development of seed to plant, the author prefers passive verbs: the seed is planted, filled with moisture, inflated, swells; eventually, the seed disappears.[31] Yet when the plant itself emerges as the subject of verbs, it exercises more directive power, striving to grow upwards and downwards and drawing nutriment from the earth. That the flow of nutriment is now initiated by the plant appreciably differentiates the case of nutrition from that of the shaken particles in the bladder-balloon.

Moreover, the qualitatively specific nature of the attraction further differentiates the case of nutrition from that of the attraction of fluids into hollow spaces.[32] It is true that there is only an oblique reference to the plant's attraction of particular kinds of nutriment at the start of the excursus,[33] where the author's mention of the "diverse humors" (ἰκμάδα παντοίην) in the earth makes sense only if you assume the theory of like to like nutriment articulated at *On Diseases IV* 34. Still, the theory ensures that the plant is not just a vacuum. In practice, what drives the difference home in the excursus is less the emphasis on the plant's capacity to attract kindred humors, as it is later in the distinction drawn between the humors proper to a rose and those proper to garlic, and more the way that the demands of life thread through the botanical excursus. Once the plant emerges as a protagonist, it is at once the site of "mechanical" processes—such as the "boiling up" of fatty humors into the tips of the plant, where they are concocted by the sun into fruit—*as well as* processes through which it nourishes itself.[34] The self-perpetuating nature of nourishment takes the plant one step further towards directed action than, say, the magnet, which is described by Diogenes of Apollonia as attracting what is akin (συγγενές) and repelling what is not, without attraction and repulsion being framed as self-reflexivity.[35] The plant's nourishment of itself is of course crucial to Aristotle's account of the lowest form of soul.[36] What I am attributing to the Hippocratic author is not full-blown Aristotelian teleology. Yet I suggest that in the excursus, the plant comes into its own as the emblem of a capacity to attract substance akin to itself, where the force of kinship here entails a sense of the plant's particular capacity, through the attraction of specific humors, to "parent" itself, that is, to perpetuate its own life.

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[30] Compare Democr. (DK68) B164, where in the case of inanimate things exhibiting a like to like tendency, motion is imparted from without (the revolution of a sieve, the movement of a wave). Lonie, *The Hippocratic Treatises "On Generation," "On the Nature of Child," "Diseases IV,"* 182–86 (following Müller, *Gleiches zu Gleichem*, 117) suggests that the explication in Ch. 17 of *Genit./Nat. puer.* is indebted to Democritus, who he reads as the most "mechanistic" of the Presocratics who use a like to like principle. Note that in the formation of the embryo, the parts are stirred up and pushed around by breath.

[31] *Genit./Nat. puer.* 22.1–2 (7.512 Littré, 68,24–69,14 Joly). The verbs are καταβληθῇ, πίμπλαται, φυσᾶται, οἰδεῖ; the subject of the following verbs is the "power" in the seed before we shift back to the seed as subject of the participle βιώμενον (the agent of which is not clear: on the limits of mechanistic explanation, see Lonie, *The Hippocratic Treatises "On Generation," "On the Nature of Child," "Diseases IV,"* 220).

[32] It does not rule out the possibility that the structure of the plant also governs attraction, however. Note, for example, that it is only when the plant's veins are wider that it can draw the thicker substance from the ground (*Genit./Nat. puer.* 26.3 [7.526 Littré, 75,24–76,1 Joly]).

[33] Though cf. *Genit./Nat. puer.* 27.1 (7.528 Littré, 76,26–77,2 Joly).

The plant's capacity for self-perpetuation belongs to the excess beyond analogy created by the excursus. For recall that taken literally, the analogy targets the dependence of the seed on the earth and, by analogy, the dependence of the seed and embryo on the uterine environment and the nourishment provided by the mother. But just as the author's account of how branches form in the tree through the accumulation of moisture deepens the likeness between the tree and the developing limbs of the embryo initially introduced by local similes, his account of how a seed or slip nourishes itself from the earth deepens the explicit comparison such that it encompasses not just the embryo's dependence but its developing independence as a living being.[37] The resurgence of the plant to describe how the body nourishes itself in *On Diseases IV* further supports the claim that plants illustrate a basic form, and perhaps the most basic form, of self-perpetuating life.

By expanding the domain for the comparison of plant life and a human being in this collection of texts, have we found claims of likeness edging into ontological claims? Are we not just like plants but somehow plants ourselves, at least at some point in our development? The question is undoubtedly anachronistic to some extent. But it is not entirely misplaced to the extent that it helps us identify different analogical vectors in the Hippocratic text. On the one hand, the answer is no. However similar the developmental process (*physis*) of plants and people, neither the process as a whole nor specific aspects of it are explicitly labeled as vegetal. If they were, we would be surprised to see the author using chicken eggs to illustrate the earliest stages of embryonic development.[38] On the other hand, it is suggestive that fetal movement is said to begin right after the ramification of the limbs. More telling still is the different model of nutrition that applies to the fetus just before birth. The author's theory of birth turns on his belief that parturition is initiated by the fetus actively seeking food, once the nutriment from the mother has become insufficient. The analogy in play here involves a chick, which in searching for food violently ruptures the membranes and triggers birth.[39] For the plant, attraction is the extent of the work needed to gain nourishment. By contrast, for the fetus, the limits of the mother qua earth (limits created of course in part by the growth of the fetus) force it to uproot itself and turn animal, as it were, by seeking its own food outside the uterine environment.[40] The emphasis on self-caused movement at the moment of birth anticipates the moment of *ontological* transition so important to later medical and philosophical embryology.

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[34] E.g., *Genit./Nat. puer.* 23.3 (7.518 Littré, 71,6–9 Joly).

[35] Diog. Apoll. (DK64) A33.

[36] Arist. *De an.* 2.2, 412a14–15 (τὴν δι' αὑτοῦ τροφήν).

[37] That some sense of the embryo's own active role in the process of nourishment is present comes at *Genit./Nat. puer.* 30.5 (7.534 Littré, 80,3–5 Joly), where the author describes the embryo as *attracting the sweetest part of the blood to itself* (ἕλκει γὰρ ἀπὸ τοῦ αἵματος ἐς ἑωυτὸ τὸ γλυκύτατον).

Nevertheless, the sense of different ontological stages in utero is weak in the Hippocratic account.[41] Rather than seeking boundaries between types of being (plant, animal, human), the author's analogical mode blurs the lines between them. He locates the likeness between plants and human beings, in particular, at the level of *physis*, not so much "nature" in the later Aristotelian sense of essence, but rather "nature" as a dynamic and organic process of growth.[42] The very question of different stages owes much to the demarcation of types of soul, first in Plato and especially in Aristotle. These demarcations transform the implications of claims about what is plant or plantlike in human nature, especially in embryology, as we will see in turning to Galen.

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[38] *Genit./Nat. puer.* 29.2–3 (7.530 Littré, 77,23–78,9 Joly), where the author says that everything he has described in the developing child is also in the developing chicken. The experiment is repeated in Aristotle and was apparently reprised in the sixteenth century. Lonie, *The Hippocratic Treatises "On Generation," "On the Nature of Child," "Diseases IV,"* 241.

[39] *Genit./Nat. puer.* 30.8–9 (7.536 Littré, 81,5–20 Joly). The hen, feeling the movement, hatches the egg whereas the child is imagined to push her own way out.

[40] On an analogous process in Lucretius, whereby the limits of mother earth drive ontological change (here, from humans as animals to humans as *social* animals), see B. Holmes, "The Poetic Logic of Negative Exceptionalism: From a State of Nature to Social Life in Lucretius, Book Five," in *Lucretius: Poetry, Philosophy, Science*, ed. D. Lehoux, A. D. Morrison, and A. Sharrock (Oxford: Oxford University Press, 2013), 153–91.

[41] There is, however, another interesting clue to an implicit understanding of stages at *Genit./Nat. puer.* 14.2 (7.492 Littré, 56,21 Joly), where the author refers to the increase, at the very early stages of development, of "what is to become a living thing" (τὸ μέλλον ζῷον ἔσεσθαι).

3 Vegetal Analogy in Galen

Galen makes frequent use of the analogy between plants and human beings, especially but not only in his embryological writings. These analogies target areas of likeness familiar to us from the Hippocratic treatises. Galen at times compares the mother to the earth and the embryo to a plant, and he has frequent recourse to the language and imagery of trunks, branches, twigs, and roots. And just as the Hippocratic botanical excursus maps a common space, where it becomes difficult to gauge the limits of the author's specific claims of likeness between plants and (developing) human beings, Galen's plant analogies often have rippling implications. In Galen's corpus, these implications acquire an ontological dimension by virtue of his interest in what he refers to, with self-conscious indifference, as *physis* (as opposed to *psychē*, after the Stoics), as well as to the nutritive or desiderative soul (Aristotle, Plato).[43] Simply put, Galen is deeply interested in how human nature participates in a form of life proper to plants.

Galen's commitment to the idea of a characteristically vegetal power or substance does not take him beyond the boundaries of analogy. As we will see, even in discussing the early stages of embryonic life, he retains the language of simile and analogy (e.g., ὡς, ὥσπερ, ὁμοίως) in referring to plants. But with the question of a form of life or soul front and center, the nature of the plant's visibility undergoes a transformation. Like the Hippocratic author, Galen is interested in what plants can show us of processes that are hidden within the pregnant body. He has regular recourse to evidence from the dissection of gravid animals, although in the earliest stages of embryonic development there is little to see even after the uterus has been cut open, with the result that the plant continues to be an important aid to inquiry. Moreover, in turning to plants to understand embryonic development in *On the Formation of the Fetus*, he recommends looking at an oak or a similar large tree, since, like the functioning of the human soul in Plato's *Republic*, the functioning of the vegetal soul is most easily seen on a macro-scale.[44] But it is not just a question of finding an analogue that is, as it were, out in the open. As I observed at the outset, the plant also manifests the work of life itself in its most naked form. Like Aristotle, Galen sees the management of life in the plant, precisely because it has only one soul, as revealing a power whose workings are more elusive in the complex organism.

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[42] E.g., *Genit./Nat. puer.* 27.1 (7.528 Littré, 77,4–7 Joly), 29.1 (7.530 Littré, 77,20 Joly).

[43] Galen prefers to speak, with the Stoics, of vegetal life in terms of *physis* (versus the *psychē* assigned to animals and human beings), which he indicates was the most standard term, but he usually makes it clear that he understands *physis* as synonymous with the desiderative (ἐπιθυμητική) soul of Plato and the nutritive (θρεπτική), vegetal (φυτική), or reproductive (γεννητική) soul in Aristotle: see e.g., *Foet. Form.* 6.31 (4.700 Kühn, 104,17–19 Nickel); *MM* 9.10 (10.635 Kühn); *PHP* VI 3.7 (5.521 Kühn, 374,13–19 De Lacy). The conflation glosses over important differences, especially between Plato's desiderative soul and Aristotle's nutritive soul, defined in part by the absence of desire. See esp. F. Solmsen, "Antecedents of Aristotle's Psychology and Scale of Beings," *American Journal of Philology* 76 (1955): 148–64. Galen's blurring of the two models is not surprising, however, given his attempts to establish the liver as the seat of a desiderative and nutritive soul. More simply, the fact that, by the second century CE, the ontological category of vegetal life was well established is itself interesting.

The interplay between these two aspects of the vegetal analogy can already be gauged in *On the Seed*, the earlier of Galen's two extant embryological texts (though appreciating how the analogy works there will require a detour into *On the Doctrines of Plato and Hippocrates*). The analogy gets underway as Galen is discussing the initial development of the embryo, focusing on its attraction of blood and breath from the uterus via veins and arteries. These veins and arteries, he continues, are, as it were, the "roots" of the organs (καθάπερ ῥίζαι); those that distribute matter to the embryo are "analogous to trunks split into many branches" (πρέμνοις ἀνάλογον εἰς πολλοὺς πτόρθους σχιζομένοις).[45] The analogy goes dormant for a brief spell, then again emerges, fleetingly, in Galen's reference to the "offshoots" (βλαστήματα) of the principal organs (brain, heart, liver) and the spinal medulla, which is described as "a kind of trunk" (οἷον πέρ τι πρέμνον).[46] Early in the next chapter, he refers to the embryo's articulated limbs as "twigs," crediting Hippocrates himself with a term designed to indicate the similarity of the limbs to branches.[47]

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[44] *Foet. Form.* 3.15 (5.666 Kühn, 70,1–3 Nickel). Cf. *PHP* VI.5.9 (5.540 Kühn, 390,6–8 De Lacy).

[45] *Sem.* 1.8.4 (4.540 Kühn, 90,17–18 De Lacy). For the comparison of the uterus to the earth, see also *Sem.* 2.4.34 (4.625 Kühn, 178,8–9 De Lacy); *Nat. Fac.* 1.6 (2.11 Kühn, 108,23–109,3 Helmreich).

[46] *Sem.* 1.8.9 (4.541 Kühn, 92,10–11 De Lacy).

[47] *Sem.* 1.9.8 (4.543 Kühn, 94,6–7 De Lacy).

Recall that in the original Hippocratic analogy, it was unclear how deep the similarity between the embryo and the tree was intended to go. But if the botanical excursus is allowed to underwrite the earlier vegetal analogies, the shared process would involve the pressure of breath or moisture as a catalyst for ramification. By contrast, Galen is primarily interested in using the image of branches or roots to describe the formation as well as the function of veins, arteries, and nerves, not just in this treatise but throughout his corpus (which can account for why he invokes Hippocrates in connection with what is for him a less standard comparison of branches to limbs).[48] Of course, in *On the Seed/Formation of the Child*, too, the strong analogy between the uterus and the earth in the botanical excursus casts the vessels—here undifferentiated into veins and arteries—as roots. Yet while the author is very interested in the plant's growth downwards and upwards, his account of upwards growth—the branching—is untethered to his account of embryonic development apart from the muted implications for the articulation of the limbs.[49] In Galen, though, the upward development of the plant has a more specific and developed parallel in the formation of systems for the distribution of matter from the principal organs to the rest of the body, a distribution that mirrors the attraction of nutriment from the uterine environment via embryonic "roots"—that is, veins and arteries.[50]

It is in part the importance of these systems, and the principal organs or *archai* from which they spring, that gives the plant analogy so much traction in Galen, not just in his embryology but in his physiology, too. Galen prided himself on following Plato's tripartition of the soul in the *Republic*, which he vigorously defended, most thoroughly in *On the Doctrines of Plato and Hippocrates*, against the Stoic model of psychic unity. Following Plato in the *Timaeus*, he located the three parts of the soul—rational, spirited, and appetitive—in the brain, heart, and liver, respectively. Galen's own account of tripartition differs in a number of ways from Plato's, notably in what it owes to the mapping of the nervous, arterial, and venous systems in the late fourth and third centuries BCE. These systems are rooted in the *archai*—again, the brain, heart, and liver, understood as the places in the body that are the sources of the powers that govern the major aspects of the body.

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[48] The comparison of the nervous, arterial, and venous systems to branches or roots is very common. In addition to the references discussed above, see, e.g., *Hipp. Epid. II* (313,3–31 Pfaff); *Foet. Form.* 2.3 (5.656 Kühn, 58,22–60,2 Nickel); *Ut. Diss.* 10.12–14 (2.906–07 Kühn, 56,2–14 Nickel); *Ven. Art. Diss.* 1 (2.779–80 Kühn).

[49] Moreover, in the major classical-era Hippocratic accounts of the vascular system (in *Epidemics II*, *On the Nature of a Human Being*, *On Places in a Human Being*, and *On the Nature of Bones*, all in non-embryological contexts), the vegetal analogy is not explicitly in play. When Galen cites "Hippocrates" on the *rhizōsis* or "root base" of the veins and arteries (e.g., *PHP* VI.8.59 [5.578 Kühn, 420,1 De Lacy]), he is referring to the treatise *On Nutriment* (31, 9.110 Littré, 144,15–17 Joly), almost certainly a post-classical (Hellenistic or early imperial) text. The passage from *On Nutriment* informs how Galen reads the earlier Hippocratic accounts (esp. what he sees as the most genuine Hippocratic account in *Epidemics II*: see *Hipp. Epid. II* [313,31–33 Pfaff]).

[50] It is not an exact mirror in that there are three branching systems "above" but only two below. Galen points out that there is no nerve that extends into the uterus for nourishment because the embryo gains all the psychic pneuma it needs from the seed (*PHP* VI.6.41–42, 5.557 Kühn, 402,21–26 De Lacy).

Galen leans heavily on a vegetal analogy to identify his three preferred organs as *archai* in *On the Doctrines of Plato and Hippocrates*. What the plant—or, in this case, a tree—makes clear,[51] Galen says, is that an *archē* is identified by the thickness of the vessels leading to or from it. In the case of the tree, the source of generation and growth is the point where the trunk meets the ground, sending forth roots below and branches up above; Galen later refers to this place as the *rhizōsis*.[52] If we "transfer this picture [τὴν εἰκόνα]" to animals, we see—or at least the careful anatomist sees—that the largest artery grows from the heart "like a tree trunk" (ὥσπερ πρέμνον), then splits into two and branches throughout the body in arboreal fashion.[53] A second artery extends to the lungs and branches there, taking up air to transfer to the heart for processing, much as the tree takes up nourishment from the earth. The spinal column, too, is like a trunk from which smaller nerves branch off, while the vena cava is the analogous "trunk" leading out from the liver, "upwards" to the whole body and "downwards" to the stomach, from which it draws raw nutriment.[54]

The extended analogy between the *archai* and the *rhizōsis* of a tree demonstrates that the plant can explicate the workings of even the postnatal human body. For not just the uterus, Galen says, but the stomach is like the earth, according to Hippocrates.[55] The lungs, too, Galen might add, are like the earth, in that they supply the body with the breath to be processed by the heart and the brain. For of course it is important in this extended discussion that the notion of *rhizōsis* apply to each one of the three *archai* equally. Elsewhere, too, Galen uses the language of branching, roots, and trunks with reference to each one of the three "networks" in the body in a way that suggests he at least in some cases treats food and air as vital substances of equal status. Nevertheless, insofar as the embryo depends on the mother for nutriment, it is closer to a plant than to an adult human being, even a newborn; that is, the analogy entails more common ground. To circle back to *On the Seed*, the description of the veins and arteries extending from the embryo to the uterus as "roots" stakes out more of the plant than the description, say, of the spinal medulla extending to the brain.

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[51] On the plant as offering *evident* facts, see, e.g., *PHP* VI.3.35 (5.530 Kühn, 382,1–5 De Lacy).

[52] *PHP* VI.3.13–15 (5.523–24 Kühn, 376,11–23 De Lacy); VI.3.38–39 (5.531 Kühn, 382,14–17 De Lacy).

[53] *PHP* VI.3.16–18 (5.524–25 Kühn, 376, 24–35 De Lacy).

[54] For the spinal cord: *PHP* VI.3.33–34 (5.529–30 Kühn, 380,28–36 De Lacy). For the vena cava: *PHP* VI.3.41 (5.532 Kühn, 382,24–28 De Lacy), VI.5.15 (5.541 Kühn, 390,20–24 De Lacy). The three "trunks" are given developmental priority at *Sem*. 1.8.9–10 (4.541 Kühn, 92,8–16 De Lacy); see also *Sem*. 1.9.16 (4.545 Kühn, 96,12–16 De Lacy).

[55] Gal. *PHP* VI.3.41 (5.532, 382,24–26 De Lacy). See *Hum*. 11 (5.490 Littré, 170,1 Overwien).

The embryo is closer to the plant for other reasons, too. These zones of likeness become clearer in the next chapter, where Galen divides embryonic development into four stages: in the first, it is still just a seed; in the second, it has begun to accumulate flesh from the blood of the mother, but the three principal organs—liver, heart, and brain—are still unarticulated; the articulation of those organs, together with a shadowy outline of the other major parts, constitutes the third stage; the final stage commences when the parts have been thoroughly differentiated and the fetus is now like a fully formed animal (ὡς ζῷον ἤδη τέλειον).[56] But, Galen continues, I have no need to speak of the embryo as an animal at the earliest stages of development, for it acquires its generation and formation during this period from the seed much "as" or "like" a plant (ὡς φυτόν).

The force of the "as" here is overdetermined. Insofar as Galen is discussing developmental progression, it gives the sense that the embryo in its earliest moments is *only* a plant, *not yet* an animal. But he goes on to describe the growth of plants in terms obviously analogous to that of the embryo: veins and arteries are like trunks and roots; the upward branching of the plant is like the formation of the *archai* in the embryo. What the plant makes visible is, accordingly, also overdetermined. On the one hand, the plant's growth process helps illustrate what is going on in the earliest developmental stage, not just by providing a visually arresting portrait of the ramification process but, more specifically, by clarifying how growth proceeds—that is, "upwards" and "downwards"—in the embryo. Here, the plant is primarily an everyday plant, say, a tree, that offers insight into something hidden, the embryo, whose early development is on such a micro scale that even dissection is of limited value. On the other hand, it is precisely by showing how growth and nourishment works that the plant lays bare something more than a structure or a process, namely, the power of the vegetative soul. Here, the embryo becomes a plant. "If you see that the plant is threefold, or has blood in it, or is fleshy," writes Galen, "you ought not for those reasons suppose that it is something else *and not a plant*. Both have the same demiurge, the vegetal soul [τὴν φυτικὴν ψυχὴν]."[57] Imagine, Galen continues, that *this plant* will become an animal not by losing anything but by gaining new powers. He speaks, then, as if "plant" is now a broader ontological category in which human beings participate, rather than something other than the human that is nevertheless sufficiently like it in some respects so as to shed light on human nature.[58]

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[56] Gal. *Sem.* 1.9.9 (4.543 Kühn, 94,10 De Lacy). Galen says he is using the language of Hippocrates here.

Instead of seeing these analogical and ontological uses of the plant as opposed, it may seem to make more sense to see them as different points on a continuum of increasing likeness between human beings and plants: similarities at the level of morphology become similarities in the processes producing these shared forms, which in turn become similarities in the very power responsible for these processes. Yet as I suggested above, it can be hard to know where to arrest a given plant analogy on the sliding scale; that is, to know when a claim of likeness entails an ontological commitment, where we move from a freer play of similarity to the harder limits imposed by the purity of plant life. Galen will in fact come to recognize these limits, leading him to modify his account of embryological development, in the only change of mind that he explicitly flags in his career-retrospective memoir, *On My Own Opinions*. But before turning to how Galen represents that change of mind in the embryological treatise *On the Formation of the Fetus*, I want to clarify what I mean by the freer play of the vegetal analogy by taking another brief look at the analogy between the *archai* and the *rhizōsis* of a tree in *On the Doctrines of Plato and Hippocrates*.

The ground of the analogy is prepared in the first chapters of Book 6 where, following discussions of the heart and the brain, Galen turns to the liver. He starts by stating that it is the source of a power (*dynamis*) also present in plants. It is no surprise, then, when he decides to inquire into this power by examining the generation and government of plants. "For it is reasonable to expect that since the power we are investigating is the only power they have, they will provide clearer signs of the power that is its source."[59] That is, plants bring clarity because they nakedly enact the most basic form of life or soul, as Aristotle had already pointed out. Indeed, the plant is even more important in this respect to Galen because his preferred method of showing in *On the Doctrines of Hippocrates and Plato*, vivisection, does not immediately demonstrate the nature of nutritive power, as it does for the powers associated with the brain and the heart. Unlike the ligation of arteries and nerves in vivisected animals, on which Galen relied for spectacular effects in his public anatomical demonstrations, the ligation of the veins does not produce an immediately observable incapacitation of the animal.[60] The nature of the liver and its powers therefore requires special arguments, still encompassing dissection, but focusing not on function but on structure as an indicator of function, as well as analogies based on the observation of the plants.[61]

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[57] εἰ δὲ τριπλοῦν ὁρᾷς τὸ φυτόν, ἢ ἔναιμον, ἢ σαρκοειδές, οὐ χρὴ τούτων ἕνεκα νομίζειν ἄλλο τι καὶ οὐ φυτὸν ὑπάρχειν αὐτό. τὸν γοῦν δημιουργὸν τὸν αὐτὸν ἔχει ἀμφότερα, τὴν φυτικὴν ψυχὴν (*Sem.* 1.9.17, 4.545–46 Kühn, 96,16–19 De Lacy).

[58] On the collapse of likeness into identity in Galen's vegetal analogies, see also D. Nickel, *Untersuchungen zur Embryologie Galens* (Berlin: Akademie Verlag, 1989), 23–27 ("Analogie und Identität gehen hier ineinander über" [23]).

By elaborating a vegetal analogy, Galen is, more specifically, targeting the claims of Erasistratus that the veins have their source in the heart, and trying to show instead that the source of the veins is in the liver. Yet Galen bolsters his arguments about the liver and the veins with a more general discussion of the nature of the *archai* and the twofold structure of their respective systems. In this context, the tree enacts, out in the open and on a macro-scale, a system of growth and nourishment that shows how every *archē* in the body works, not just the liver, the place in us where plant life persists in its purity: all the *archai* are, at least for Galen's purposes here, equally plantlike. In other words, the analogy is sufficiently loose to make room for the heart and the brain alongside the liver, despite the fact that these *archai* distribute powers that are more-than-vegetal.[62] Even when Galen reprises the analogy in his account of the initial formation of the venous system in utero, the claim that the veins are like branches or, in the case of those veins reaching into the uterus, like roots, the emphasis on the liver and the veins is explained by the subject of Galen's polemic against Erasistratus, not by a necessary restriction of the vegetal analogy to the liver and its sourcing and distribution of nutriment.[63] In a similar way, in *On the Seed*, the analogy between the embryo and the plant clarifies the former's growth process in terms of rooting down (into the uterus) and up (into the rest of the "body"). The twofold movement applies equally to (at least) veins and arteries. Neither the veins nor the liver have a special purchase on the nature of plant life.

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[59] εἰκὸς γάρ που μόνην ἐκείνοις ὑπάρχουσαν τὴν ζητουμένην δύναμιν ἐναργέστερα τεκμήρια τοῦ μέρους ὅθεν ὁρμᾶται παραχέσθαι (*PHP* VI.3.10 [5.522 Kühn, 374,30–32 De Lacy]).

[60] On the importance of spectacle to these demonstrations see A. Debru, "Les démonstrations médicales à Rome au temps de Galien," in *Ancient Medicine in its Socio-Cultural Context: Papers Read at the Congress Held at Leiden University 13–15 April 1992*, 2 vols, ed. P. van der Eijk, H. F. J. Horstmanshoff, and P. H. Schrijvers (Amsterdam: Editions Rodopi, 1995), 1: 69–81; H. von Staden, "Anatomy as Rhetoric: Galen on Dissection and Persuasion," *Journal of the History of Medicine and the Allied Sciences* 50 (1995): 47–66; and esp. M. Gleason, "Shock and Awe: The Performance Dimension of Galen's Anatomical Demonstrations," in *Galen and the World of Knowledge*, ed. C. Gill, T. Whitmarsh, and J. Wilkins (Cambridge: Cambridge University Press, 2009), 85–114.

[61] *PHP* VI.3.2–6 (5.519–21 Kühn, 372,18–374,8 De Lacy). On the special status of the liver in Galen's tripartite system and the unique demonstrative strategies it requires, see further P. De Lacy, "The Third Part of the Soul," in *Le opere psicologiche di Galeno*, ed. P. Manuli and M. Vegetti (Naples: Bibliopolis, 1988), 43–63; R. J. Hankinson, "Galen's Anatomy of the Soul," *Phronesis* 36 (1991): 223–29; T. Tieleman, "Galen on the Seat of the Intellect: Anatomical Experiment and Philosophical Tradition," in *Science and Mathematics in Ancient Greek Culture*, ed. T. Rihll and C. Tuplin (Oxford: Oxford University Press, 2002), 266–67; M. Schiefsky, "Galen and the Tripartite Soul," in *Plato and the Divided Self*, ed. R. Barney, T. Brennan, and C. Brittain (Cambridge: Cambridge University Press, 2012), 340–44; B. Holmes, "Disturbing Connections: Sympathetic Affections, Mental Disorder, and Galen's Elusive Soul," in *Mental Disorders in Classical Antiquity*, ed. W. V. Harris (Leiden: Brill, 2013), 169–70. For Plotinus' elaboration of the liver's status as physiological and psychological seat and plantlike nature, see Roby in this volume.

Yet if we tighten the screws on the analogy, the liver gains in importance as the source of the power (*dynamis*) Galen calls desiderative or vegetal in the human being. We can watch this happen in *On the Doctrines of Plato and Hippocrates*, when Galen takes aim at the idea that the heart supplies the veins with the power to nourish by arguing that it is, rather, the liver that is the source of such power. In this context, his claim that the liver "is comparable to the part of the plant which we called *rhizōsis*" entails more likeness than his earlier claims, where any *archē* could be called the analogue of the *rhizōsis*.[64] For now the analogy requires that whatever is called *rhizōsis* be the source of nutriment: only the liver satisfies these conditions and, in so doing, it participates (almost) fully and purely in the power of vegetal or nutritive life.[65]

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[62] The claim that all the *archai* are equally plantlike of course also has a basis in the formation of those systems via the natural faculty of generation and growth (as at *Foet. Form.* 3.23 [4.670–71 Kühn, 74,3–16 Nickel]; 5.10–15 [4.682–84 Kühn, 86,17–88,13 De Lacy], where this faculty in fact raises some problems for Galen) as well as in the concept of the *archē* as proper to the simplest form of life (and then adapted to each subsequent stage). Nevertheless, the analogical distance from the trunk of the tree to the heart is greater than it is to the liver in that one has to treat air analogically to nutriment drawn from the soil (whereas the nutriment drawn from the stomach is directly governed by the vegetal soul in us), as we see above.

[63] See *PHP* VI.6.37–39 (5.556 Kühn, 402,8–17 De Lacy).

[64] *PHP* VI.4.3 (5.533 Kühn, 384,9–14 De Lacy). The looser sense of *rhizōsis* returns in the analogy between the liver, the heart, and the base of the tree at VI.5.20 (5.543 Kühn, 392,1–5 De Lacy).

Tightening the plant analogy has even more dramatic implications for the comparison of the embryo to a plant in *On the Formation of the Fetus*. Galen, as we have seen, already employs not just a vegetal analogy but also what look like ontological claims about the embryo qua plant in *On the Seed*. These claims, however, do not govern his account of the formation of the *archai*. Rather, he treats the three *archai* as forming at approximately the same time, or at least not in any definite order. In *On the Formation of the Fetus*, Galen says he has modified his account of the formation of the principal organs—or, more specifically, the heart and the liver—precisely because he has come to accept the consensus among philosophers and physicians that "the embryo is still managed in the same way as plants [ὁμοίως τοῖς φυτοῖς] until its clear articulation."[66] Despite the fact that in *On the Seed* he himself classifies the embryo as a plant and recognizes it is initially governed by a "vegetal power,"[67] he here represents himself as making a self-conscious commitment to the claim that the embryo is managed like a plant subsequent to writing that treatise.[68] More important, that commitment leads him to conclude that the heart has no function in the earliest phase of embryonic life and it is, rather, the liver that is the first principal organ to form.[69] What he wants to show now, through the plant, is how this revised story is possible.

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[65] The liver differs from the plant in that it is supplied with heat via an artery and it has faint sensation via a small nerve: see, e.g., *PHP* VI.8.53 (5.577 Kühn, 418,22–23 De Lacy), *UP* 4.13 (3.310 Kühn, 1:227,17–228,6 Helmreich).

[66] *Foet. Form.* 3.9 (5.663 Kühn, 66,24–25 Nickel). Galen says at *Prop. Plac.* 11.2–5 (90,22–95,16 Nutton, 182,20–183,15 Boudon-Millot and Pietrobelli) that in his youth he held the view that the heart is formed first, though we have no texts recording this position; moreover, in the *Prop. Plac.* passage the analogy with plants is not mentioned as part of what led him to change his mind. On the complexities and inconsistencies of Galen's account of his revised opinion, see further Nickel, *Untersuchungen zur Embryologie Galens*, 80–82; A. Debru, "L'ordre de formation des organes embryonnaires: la retractatio de Galien," *Bulletin d'Histoire et d'Epistémologie des Sciences de la Vie* 2 (1995): 156–63; V. Nutton, *Galeni De propriis placitis*, CMG V 3,2 (Berlin, 1999), 177–78 *ad* p. 90,22–92,3. Note that at *UP* 15.6 (4.241–42 Kühn, 2:359,9–360,13 Helmreich), Galen points out the large size of the liver from the earliest point in embryonic development and observes that the embryo is governed for a long time "like a plant" (δίκην φυτοῦ), but he does not say anything about a change in his views on the matter.

[67] *Sem.* 1.10.1 (4.546 Kühn, 98,1 De Lacy).

[68] Debru, "L'ordre de formation des organes embryonnaires," 160–61 explains Galen's confusing representation of his "discovery" of the embryo qua plant in *Foet. Form.* by emphasizing, as I do above, the new importance of the (old) vegetal analogy as a way to make claims about the nature of plant life, what she calls "vie sans cœur."

The likeness between embryo and plant at the level of the governing power thus, comes to impose restrictions on the very life or soul proper to the first stage of human nature. Here, in Galen's analysis of the conditions under which the plant and the human come as close to one another as they ever will, the clarity that the vegetal analogy brings to bear on embryonic development is at once another way of unveiling what is difficult to see in the dissection of a pregnant animal, and a stripping back of the powers (and the organs that serve as their sources) that are superfluous to vegetal life (here, the heart).[70] Galen introduces an extended vegetal analogy in this context because "from a consideration of the conditions necessary for plants, we will be able to determine precisely what the embryo needs during the phase when it is still governed by one soul in the same way that plants are [ὡς τὰ φύτα]."[71] The plant becomes the avatar of embryonic life, understood now as the life of the liver alone, unadulterated by animal powers. Galen goes on to retrace the familiar analogy between the branching of the veins from the liver and the branching and rooting of trees. But in this iteration, the analogy captures not just the formation of an *archē* but the formation of the very first *archē*, the liver, as the foundational stratum of life.

I have argued that the fullest extension of the vegetal analogy in Galen invests plants with a twofold capacity to make manifest, related, first, to their place out in the open, in contrast to the hidden embryo; and second, to the purity of their life, which lacks the accretions of animal soul. In emphasizing this second aspect of plants, Galen comes closest to classifying aspects of human life (the liver, the first phase of embryonic life) as vegetal. Recall, for example, his reference to the embryo as "this plant" in *On the Seed*. Moreover, in its fullest extension the vegetal analogy imposes limits on what is possible for these aspects of human life. Nevertheless, even as Galen more rigorously applies the vegetal analogy to the first phase of embryonic life in *On the Formation of the Fetus*, he respects a boundary of likeness between the plant and the embryo, consistently referring to the embryo not as a plant but as governed *in the same way as* a plant. By remaining within the boundaries of analogy, he respects, too, a difference between actual plants and nature (or nutritive or desiderative soul). The plant manifests but is not coextensive with this nature or soul, or, as we might interpret Galen's not-quite-inconsequential conflation of Plato, Aristotle, and the Stoics, the soul *of* nature.

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[69] In fact, the liver forms after the formation of the veins and arteries that transmit blood from the mother, as Galen emphasizes at *Foet. Form.* 5.10 (4.682 Kühn, 86,8–17 Nickel). Nutton, *Galeni De propriis placitis*, 177 *ad* p. 90,22–92,3 suggests that the passage indicates a "slightly different view" that (as in *On the Seed*) groups heart and liver together, but insofar as Galen is emphasizing the priority of the vessels, the grouping of heart and liver need not indicate a different view than when he defends the priority of liver over heart.

[70] Dissection remains useful: Galen here rereads the description of the aborted six-day-old embryo in *On the Seed/On the Nature of Child* as showing that the liver is the first organ to form. For the opening up of the pregnant body as a process of unveiling or laying bare the fetus, see e.g., *Foet. Form.* (4.664 Kühn, 68,3 Nickel): εἰς γύμνωσιν τῶν ἐν τῷ βάθει μορίων; *PHP* VI.6.46 (5.558 Kühn, 404,3 De Lacy): γυμνὸν ἐργάζεσθαι τὸ ἔμβρυον.

[71] ἐκ γὰρ τῶν εἰς ταῦτα ἀναγκαίων ἔνεστι καὶ [τὸ] γιγνώσκειν, ὁποίων τε καὶ ὁπόσων δεῖται τὸ κύημα, μέχρις ἂν ὑπὸ μιᾶς διοικῆται ψυχῆς ὡς τὰ φύτα (*Foet. Form.* 3.12 [4.665 Kühn, 68,10–12 Nickel]).

In manifesting nutritive or desiderative soul, the plant also brings to the surface a mystery or a puzzle, a puzzle about how bare, how pure vegetal life in fact is. Galen was deeply committed to his concept of the natural faculties, the faculties that constitute what he prefers to call nature, after the Stoics, but also nutritive and desiderative soul. These faculties govern growth and nutrition, as well as, at least in *On the Natural Faculties*, generation. In truth, on this last point, Galen struggled throughout his life to come to a clear understanding. He concludes at the end of *On the Formation of the Fetus* that he can neither fully accept that nature or the nutritive soul constructs the fetus, "since this kind of soul is not only not intelligent, but entirely devoid of reason," but nor can he entirely reject its involvement, given the similarity of the child to its parents.[72] He resists the idea, too, that it is the rational soul that creates the embryo and continues to govern aspects of the body after birth, for the reason that we are ignorant, without anatomical research, of the parts of the body and their functions.[73] The aporia is generated, on the one hand, by a bareness in vegetal life now implicated in lack—the lack of the intelligence needed to construct a human being—and, on the other hand, by the difficulty of reconciling the rational soul to non-conscious, seemingly mindless "plant" life. Here, the plant can only show so much. Or rather, its ontological limitations—that is, its non-participation in rational mind—make visible a problem for an account of the development of human life that privileges the vegetal soul. It is possible that these limitations can help explain why, in what would seem to be Galen's last word on embryological development in *On My Own Opinions*, the vegetal analogy, presented as the key to the puzzle of early human life in *On the Formation of the Fetus*, unexpectedly falls out of Galen's summary of arguments for the priority of the liver.[74]

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[72] *Foet. Form.* 6.31 (4.700 Kühn, 104,19–22 Nickel).

[73] I discuss the problem of the immanence of demiurgic intelligence further at B. Holmes, "Galen on the Chances of Life," in *Probabilities, Hypotheticals, and Counterfactuals in Ancient Greek Thought*, ed. V. Wohl (Cambridge: Cambridge University Press, 2014), 247–50.

The mystery of vegetal soul is not confined, however, to embryology. Galen was concerned, too, about how plants go about the labor of nutrition and growth. In *On the Natural Faculties*, he accepts the Stoic division between nature and soul and, following Aristotle as well, denies the faculty of perception to plants: nutrition is explained through the natural faculties alone.[75] Importantly, these faculties (and, more specifically, the "attractive faculty") enable the plant to attract the nutriment that is appropriate to it. But in the late text *On My Own Opinions*, as well as in his commentary on Plato's *Timaeus*, Galen offers an account of vegetal life that is richer in that it extends perception to plants. In both texts, he explicitly endorses Plato's attribution of perception in plants, reading perception in the *Timaeus*, albeit without much textual support from the dialogue itself, in the precise sense of being able to recognize what is appropriate and to reject what is foreign.[76] For, he argues, the capacity to make such distinctions entails a form of perception.[77] Unlike the change of mind he describes in his embryological thinking, Galen does not reflect on the apparent divergence between his position in *On the Natural Faculties*, where vegetal life exists without perception, and his defense of Plato's attribution of perception to plants in *On My Own Opinions*.[78] Nevertheless, here again, we see traces of Galen's difficulty in grasping the nature of nature as it works through the plant. The power that lies behind the life of plants is, then, not only out in the open and pure, but also puzzling and hidden.

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[74] He does make one short reference to the plant in speculating about the power that shapes the fetus (*Prop. Plac.* 11.1 [90,18–22 Nutton, 182,16–19 Boudon-Millot and Pietrobelli]). Debru, "L'ordre de formation des organes embryonnaires," 162 also emphasizes the disappearance of the plant analogy in *On My Own Opinions*.

[75] For Aristotle's denial of perception to plants, see *De an.* 2.12, 424a32–b3, with D. Murphy, "Aristotle on Why Plants Cannot Perceive," *Oxford Studies in Ancient Philosophy* 29 (2005): 295–339, who argues that plants lack perception because they cannot regulate internal heat. On the Stoic denial of perception to plants, see R. Sorabji, *Animal Minds and Human Morals* (Ithaca: Cornell University Press, 1993), 98–99, with nn. 14–15.

[76] *Prop. Plac.* 15.7–9 (122,1–124,22 Nutton; 189,23–190,16 Boudon-Millot and Pietrobelli); *Plat. Tim.* 12.22–13.7 Schröder, with J. Wilberding, "The Secret of Sentient Vegetative Life in Galen," in *Philosophical Themes in Galen*, ed. P. Adamson, R. Hansberger, and J. Wilberding, Bulletin of the Institute of Classical Studies Supplement 114 (London: Institute of Classical Studies, University of London, 2014), 254–56. On what Plato means by perception here, see Pl. *Ti.* 77b, with A. Carpenter, "Embodied Intelligent (?) Souls: Plants in Plato's *Timaeus*," *Phronesis* 55 (2010): 281–303.

[77] *Prop. Plac.* 15.6 (120,24–25 Nutton; 189,23 Boudon-Millot and Pietrobelli).

[78] Cf. Wilberding, "The Secret of Sentient Vegetative Life in Galen," 261–68, who downplays the difference between the texts. See also Schiefsky, "Galen and the Tripartite Soul," 343–44, who reads the later references to perception as a gloss on Galen's attribution of

The manifest but puzzling capacity of plants to "recognize" what is appropriate or kin brings us back to the botanical excursus of *On the Seed/On the Nature of Child*, and indeed on the question of plant nutrition Galen himself positions himself, not for the first time, as a simple follower of Hippocrates.[79] Recall that in the excursus, that capacity is only obliquely named in the analogy's formal introduction, which targets the embryo's dependence on the uterine environment for good or bad nourishment. That capacity of discrimination nevertheless points towards an understanding of the plant as manifesting a basic capacity to sustain life, as I suggested above, a capacity equally relevant to the earliest stages of human life. Still, in the Hippocratic text, the vegetal analogy does not entail commitments to a definition of vegetal soul. Galen's inheritance of that soul, crossed with the Stoic concept of nature, leads him to a more complex and dynamic application of the vegetal analogy to human life, especially in its embryonic form. In elaborating that analogy, Galen also extends its field of visibility such that the analogy comes to lay bare the barest form of life and, in so doing, to raise difficult questions about how bare life can be and still carry out the not so mindless work of living.

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desires (*epithumiai*) to the third part of the soul (e.g., in *On the Doctrines of Plato and Hippocrates*).

[79] Galen is responding to the limited analogy in *On the Nature of a Human Being* (see above, n. 23): *HNH ad* I 32 (15.80 Kühn, 42,16–30 Mewald).

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CHAPTER 11

Animal, Vegetable, Metaphor: Plotinus's Liver and the Roots of Biological Identity

Courtney Ann Roby

This essay examines Plotinus's arguments about how living organisms maintain their unified biological identity. I compare theories about how metaphors and metonyms effect conceptual transfer between different domains. Since metonymies structure relationships between parts and wholes, they offer Plotinus a powerful tool to explain the vegetal faculty that maintains an organism's biological identity. I contrast Galen's model of that faculty and its place within the body with Plotinus's, where it is explicitly identified as the source of biological identity. The crucial role Plotinus assigns the vegetal soul that pervades all kinds of organisms—animals, plants, and even the earth—thus provokes us to reflect on the attributes we share with all other types of living individuals.

1 Introduction

Plotinus, who studied in Alexandria and taught in Rome, composed his *Enneads* (the title alludes to his student Porphyry's grouping of the text into six sets of nine books) during the second half of the third century CE. The massive work covers a very wide range of subjects, including virtue, beauty, stars, matter, destiny, free will, and the relationship between body and soul. The last of these especially never ceased to present problems for Plotinus, and his treatment is accordingly complex. Porphyry's *Life* of Plotinus introduces him as a man who felt shame at being embodied, explains that he was so resistant to having the image of his body preserved after his death that his portrait could only be done by stealth, describes his lifelong suffering from an intestinal ailment for which he would not accept treatment by enemas because that too seemed shameful, and concludes with the dreadful state of ill health in which he spent his last days.[1]

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[1] Porph. *Plot.* 1–2.

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However, while Plotinus certainly does not flatter the body's role within the great complex of soul and matter that comprises his universe, he remains deeply interested in the body's composition and function. Indeed, after his prefatory remarks on Plotinus's own bodily woes, Porphyry later lists the many doctors among his long-term disciples, and even remarks that Plotinus deterred him from a planned suicide by diagnosing him with an excess of black bile and prescribing a vacation.[2] Plotinus may indeed have pursued the ideal of remaining maximally independent of bodily needs, but that pursuit was itself contingent on a detailed understanding of the body.

Plotinus is often referred to as the founder of Neoplatonism, but this is an observer's category and should be treated with care. Gerson suggests that "Plotinus thought of himself simply as a disciple of Plato. He probably would have been deeply disturbed to be characterized as the founder of something called 'Neoplatonism.'"[3] At the same time, however, Gerson emphasizes that Plotinus's *Enneads*, despite their concern with problems rooted in Plato's own work, are in fact radically creative, innovative works in their own right. While I will not even pretend to engage in any depth here with the question of the relationship between Plotinus's ideas and Plato's, he certainly suggests some profound shifts from Plato's model of the relationship between the soul and the bodily organs.[4] In particular, Plotinus's model of the liver turns out to be central to his complex response to the question of what affords *bodily* unity to a living organism.[5] The most basic questions of organismic unity seem to demand the same kind of response for a plant that they would for a human. Hence, though the brain often takes the spotlight when it comes to questions about the relationship between the human body and soul, for the question of bodily unity we will want to look deeper. In particular, we will want to develop a set of tools that can help us navigate between plants' and animals' psychic and bodily structures and functions.

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[2] Porph. *Plot.* 11.

[3] L. P. Gerson, ed., "Introduction," in *The Cambridge Companion to Plotinus* (Cambridge: Cambridge University Press, 1996), 3.

[4] A good introduction to the problems and complexities of the Platonic-Neoplatonic tradition can be found at M. L. Gatti, "Plotinus: The Platonic Tradition and the Foundation of Neoplatonism," in *The Cambridge Companion to Plotinus*, ed. L. P. Gerson (Cambridge: Cambridge University Press, 1996), 11–37. For more extensive discussion, see for example C. J. de Vogel, "On the Neoplatonic Character of Platonism and the Platonic Character of Neoplatonism," *Mind*, New Series, 62/245 (1953): 43–64; T. A. Szlezák, *Platon Und Aristoteles in Der Nuslehre Plotins* (Basel: Schwabe, 1979).

[5] The integration of bodily parts into a unified organism of course connects to a much larger set of issues about parts and wholes that I cannot address here in any detail, but only suggest some resources that touch particularly closely on the problems here. As J. Barnes points out, the idea that everything is a part of one big whole was very important to imperial-era Stoicism ("Bits and Pieces," in *Matter and Metaphysics: Fourth Symposium Hellenisticum*, ed. J. Barnes and M. Mignucci (Naples: Bibliopolis, 1988), 225). Collette-Dučić presents the cosmic *systēma* of the Stoics (echoing Goldschmidt in attributing the term's initial use to them) as a backdrop to the development of Plotinus's own ideas; Posidonius's definition seems to have been particularly influential on him (Posidonius, cited at Diogenes Laertius 7.138;

Invoking questions about the connectedness of the living body on the one hand, and the degree of similarity between plant and animal life on the other, recalls criteria often used to distinguish between metonymy and metaphor. Metaphors capitalize on or problematize similarities between attributes of divergent objects, while metonymies exploit spatial, conceptual, or linguistic contiguities between them. As we shall see, this same distinction can help unpack Plotinus's analysis of the role played by the liver and vegetal soul as components of a whole individual organism, which is in turn part of a larger universal organism.

2 Metaphor and Metonymy

Much modern analysis of the form and function of metaphorical language derives from Aristotle's *Poetics*, where metaphors are said to involve a transfer from genus to species, species to genus, or between species or members of an analogy (*Poet.* 1457b7–9), and to rely on their user's ability to discern similarities (1459a5–8). Here he defines metaphor by analogy as a special substitution between two pairs of elements, the second of which has the same relation to the first as the fourth to the third. He returns to this typology of metaphor in the *Rhetoric*, where he attributes the greatest effectiveness to metaphors based on analogy (κατ' ἀναλογίαν, *Rh.* 1411a1–2). The analogy in this case might be a quantitative proportion, but is more often just a matter of matching elements in one domain (e.g. Sisyphus and his stone, *Rh.* 1412a5–7) to those in the other (e.g. a badly-treated man and the one he treats badly).

Of course Aristotle did not have the last word on metaphor in antiquity. Quintilian defines metaphor similarly to Aristotle at *Institutiones oratoriae* 8.6.9. Besides ornamenting language, he says, metaphor increases its capacity

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V. Goldschmidt, *Le Système Stoïcien et l'Idée de Temps* (Paris: J. Vrin, 1953), 61; B. Collette-Dučić, *Plotin et l'ordonnancement de l'être* (Paris: Libr. Vrin, 2007), 15–18, 29–33). Sextus Empiricus engages with Peripatetic and Stoic ideas (as well as Epicurean) about the complicated relationships between parts and wholes (a passage of particular relevance to the issues here is at *Math.* IX.339).

(*copia*) through alteration and exchange, as a word is transferred from its proper domain (*locus*) into a domain where it is lacking or where it can signify more powerfully than in its proper domain (8.6.4–6). He lists some basic types of transfer, but immediately clarifies that these could easily be distinguished into more types (e.g. between rational and irrational animals), and leaves the stipulation of such rules as an exercise for the reader. Likewise, the rhetorical treatise *On invention* traditionally attributed to Hermogenes discusses metaphor in the context of tropes, which are defined as translating words significant in one domain into another, where they "can be applied in common to the subject and a subject brought to light from elsewhere."[6] Once again, the focus remains on the act of conceptual transfer rather than the specifics of the objects between which that transfer occurs.

Just how does this transfer work? The Aristotelian model of metaphor is often labeled the "comparison model" or "similarity model," and suggests that metaphors are first recognized as literally false, which then triggers a comparison of attributes. So "man is a wolf" is interpreted as false, and then shifted mentally to something like "man is like a wolf" or "man acts like a wolf."[7] Silk, following Aristotle's approach, argues that the basic operating principle of metaphor is *substitution*: a metaphor such as "10,000 deeds" can be comprehended by substituting "many" for "10,000."[8] Jakobson's model explicitly identifies similarity as what connects a metaphoric term to that for which it is substituted.[9]

More recently, however, similarity has come under critical scrutiny as the central structuring force of metaphor. First of all, as Ortony points out, metaphorical language often relies on similarities between dissimilar concepts, so the terms may shift in meaning as they shift domains from tenor to vehicle.[10]

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[6] ps-Hermogenes, Περὶ εὑρέσεως 4.10, in H. Rabe, ed., *Invention and Method: Two Rhetorical Treatises from the Hermogenic Corpus*, trans. G. A. Kennedy (Atlanta: Society of Biblical Literature, 2005), 199.

[7] S. Glucksberg and B. Keysar, "Understanding Metaphorical Comparisons: Beyond Similarity," *Psychological Review* 97/1 (1990): 16, doi:10.1037/0033–295X.97.1.3.

[8] M. Silk, "Metaphor and Metonymy: Aristotle, Jakobson, Ricoeur, and Others," in *Metaphor, Allegory, and the Classical Tradition: Ancient Thought and Modern Revisions*, ed. G. R. Boys-Stones (Oxford: Oxford University Press, 2003), 118.

[9] R. Jakobson, "Two Aspects of Language and Two Types of Aphasic Disturbances," in *On Language*, ed. L. R. Waugh and M. Monville-Burston (Cambridge, Massachusetts: Harvard University Press, 1990), 129.

[10] A. Ortony, "Beyond Literal Similarity," *Psychological Review* 86/3 (1979): 167, doi:10.1037/0033–295X.86.3.161. Ortony here gives the body-based example, "blood vessels are like aqueducts," and points out that the similarity relation "channel for carrying liquids" changes meaning considerably between the "blood vessel" domain and the "aque-

Haser suggests that this same semantic distance makes analogy a better model for metaphor than simple matching of overlapping attributes.[11] Glucksberg and Keysar object to the cognitive process the "comparison model" presupposes. Humans do not perform comparisons on complete sets of objects' attributes (were that even possible!), but rather selectively compare subsets of attributes selected in advance as relevant to the task of comparison.

Most importantly, the "comparison model" does not allow for the metaphor to yield any additional comprehension.[12] "Man is a wolf" should allow me to use what I know about wolves to comprehend "man" in a certain way, but I cannot do this by matching attributes, since I will only learn what I need to know about man from the metaphor itself. Likewise, Aristotle's argument for metaphor's didactic capacity depends on its teaching through the shared attributes of the genus.[13] As Ortony et al. frame the problem, metaphorical comparisons frequently involve attributes that would only enter the listener's mental representation of the object *after* the metaphor has been comprehended.[14]

The power of metaphors to yield new understanding in this way is crucial to their relevance for scientific and philosophical texts; they do not just ornament the information in the text, but explain it as well. This question is particularly important for Plotinus's work, given his extensive use of figurative language. Ferwerda, Blumenthal, and others have argued that Plotinus's metaphors merely repeat doctrine more succinctly and literally expressed in other passages, so that metaphors and other figurative expressions have no explanatory value of their own.[15] Rappe, on the other hand, strongly critiques the "comparison model" upon which those arguments are based, arguing that metaphor plays a strong didactic role in the *Enneads*.[16] She argues that Plotinus's

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duct" domain. On the related problem that metaphors are often asymmetrical and hence irreversible, see A. Ortony, R. J. Vondruska, M. A. Foss, and L. E. Jones, "Salience, Similes, and the Asymmetry of Similarity," *Journal of Memory and Language* 24/5 (1985): 569–94.

[11] V. Haser, *Metaphor, Metonymy, and Experientialist Philosophy Challenging Cognitive Semantics*, Topics in English Linguistics [TiEL] Ser, Vol. 49 (Berlin: de Gruyter, 2005), 20.

[12] Glucksberg and Keysar, "Understanding Metaphorical Comparisons," 7.

[13] *Rh.* 1410a12–14.

[14] Ortony et al., "Salience, Similes, and the Asymmetry of Similarity," 588.

[15] R. Ferwerda, in particular, argues that neither in Plotinus nor in Plato does figurative language have any meaning in itself at *La Signification des Images et des Métaphores dans la Pensée de Plotin* (Groningen: J. B. Wolters, 1965), 7.

[16] S. Rappe, "Metaphor in Plotinus' Enneads V 8.9," *Ancient Philosophy* 15/1 (1995): 159. Rappe intends this not merely in the way a Platonic *paradeigma* points its audience toward the truth, but in the strong sense of the "interactionist" theory of metaphor most often associated with Black's work, where the semantic leap triggered by the metaphor

metaphors do much more than enumerate similarities between subject and predicate; they take his reader outside that semantic exchange entirely.[17] For metaphor to function as a didactic tool, in Plotinus and elsewhere, it must be understood as something other than a simple attribute-matching scheme.

Better than the similarity approach, argue Glucksberg and Keysar, is to view metaphors as class-inclusion assertions, where class membership is determined through an *ad hoc* search for "salient and relevant properties of a predicate that can sensibly or plausibly be attributed to the subject of the comparison."[18] In this approach, the vehicle of the metaphor is viewed as a prototype, a representative of a category that other members of that category may resemble to differing degrees while still belonging. The metaphor creates a grouping that triggers the similarity relation, and operates through a comparison between different category levels. So "man is a wolf" makes "wolf" the prototype, and invites the listener to consider the aspects of "man" that best qualify for membership in the category of wolflike things.[19]

In some ways this prototyping model resembles Lakoff, Turner, and Johnson's influential work on how the cross-domain mappings of metaphors are empowered or "sanctioned" by a set of more general conceptual metaphors, which are "motivated by the structure of our experience."[20] However, Glucksberg and Keysar's approach is less universalizing than Lakoff's, relying on class-inclusion relationships formed *ad hoc* rather than universally applicable frames of "sanctioned" mappings like HAPPY IS UP. Perhaps more importantly, as Haser

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actually generates new, "complex," "emergent" meaning. On the Platonic *paradeigma*, see V. Goldschmidt, *Le Paradigme dans la Dialectique Platonicienne* (Paris: Presses Universitaires de France, 1947), 112. On the possibility that metaphor may generate "emergent" meaning, see M. Black, *Models and Metaphors: Studies in Language and Philosophy* (Ithaca: Cornell University Press, 1962), 38–41; Haser, *Metaphor, Metonymy, and Experientialist Philosophy*, 40; Silk, "Metaphor and Metonymy," 121, 140.

[17] Rappe, "Metaphor in Plotinus' Enneads V 8.9," 169.

[18] Glucksberg and Keysar, "Understanding Metaphorical Comparisons," 7.

[19] Glucksberg and Keysar acknowledge their debt for this view to Roger Brown, who much earlier classified metaphor among "superordinate-subordinate relations," with the peculiar quality that the superordinate element is not given its name, but rather "the name of one subordinate (i.e., the vehicle) is extended to the other." See R. Brown, *Words and Things* (Glencoe, Illinois: The Free Press, 1958), 140.

[20] G. Lakoff, "The Contemporary Theory of Metaphor," in *Metaphor and Thought*, 2nd ed., ed. A. Ortony (Cambridge: Cambridge University Press, 1993), 209; G. Lakoff, *Women, Fire, and Dangerous Things: What Categories Reveal about the Mind* (Chicago: University of Chicago Press, 1987), 276. Lakoff invokes a kind of "prototyping" that works with his system: *ibid.*, 68.

points out, the experience-based resemblances that sanction Lakoff's primary metaphors like HAPPY IS UP (such as seeing cheerful people walking with head held high) validate aspects of that relationship that far transcend a particular way of describing happiness. By contrast, the connection between domains in Glucksberg and Keysar's model is purely a matter of the metaphorical transfer.

Whereas the comparison model interprets metaphors as implicit similes, the prototyping model interprets similes as "implicit category statements."[21] Nor is there merely a binary distinction between metaphors and similes; metaphors in the prototyping model admit of "degrees of metaphoricity" that vary with the presence of hedging terms such as "like," the perceived prototypicality of the vehicle, and the salience of parts chosen for participation in the metaphor.[22] This approach claims several other advantages beyond its easy accommodation of degrees of metaphoricity: it accounts for the irreversibility of metaphors; it does not rely on the improbable selection of relevant attributes before the metaphor has even been understood; and it accounts for different experiences of the comprehensibility of the metaphor, which are referred to differing responses to the prototypicality of the vehicle.[23]

Though metaphor has undeniably received the lion's share of critical attention, metonymy arguably represents an even wider range of conceptual structures, both literal and figurative, that bind ideas and things to one another. Ancient authors like Quintilian and the author of the *Rhetorica Anonyma* use "metonymy," "synecdoche," and "*hypallagē*" for different ways of referring to something using another word which is somehow related to it. "Part for whole" (or "whole for part") is the core exemplar of synecdoche in the ancient rhetorical literature, while "metonymy" proper is taken to cover other relationships, such as "possessor for possessed."[24] In particular, metonymy's ability to structure the relationships between parts and wholes renders it especially relevant to questions about the biological identity of an organism compounded of multiple parts.

As noted above, Jakobson treats the metonym as a relationship of contiguity or combination. Often we think of this in terms of linguistic signs in combination with, and contextualized by, other signs, bound together into a "superior unit"; however, as mentioned above Jakobson insists that linguistic signs are only one type of object that may participate in a relationship of contiguity or similarity.[25] Support for the view that metonyms can do more than manipulate linguistic signs comes (as it does for the analogous view of metaphor) from a spectrum of cognitivist arguments that metonymic contiguity relationships refer to conceptual relationships between frames or domains.[26]

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[21] Glucksberg and Keysar, "Understanding Metaphorical Comparisons," 16.

[22] *Ibid.*, 14–16.

[23] *Ibid.*, 12.

[24] The differences are minor, as Quintilian notes (8.6.23), and since the three terms together occupy conceptual territory now covered entirely by the term "metonymy," I shall use this term as a catch-all in what follows.

Dirven introduces a nuanced spectrum of "figurativeness," incorporating metaphor and three basic classes of metonyms (and of the "syntagms" into which they are bound) in place of the metaphor-metonymy binary split.[27] Metonyms in Dirven's model may be "linear" (part-whole, container-contents, etc.); "conjunctive" (a systematic semantic extension, as when "tea" is used for a whole meal built around the eponymous beverage), or "inclusive" (involving a figurative domain shift like "he's got a good head on his shoulders").[28] Clearly, metonymic "contiguity" has an expansive range of meanings; purely spatial contiguity, which characterizes the connections between parts in Dirven's first type of metonymy, is just the tip of the iceberg.

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[25] Jakobson, "Two Aspects of Language and Two Types of Aphasic Disturbances," 119.

[26] Lakoff, *Women, Fire, and Dangerous Things*, 79–90; K.-U. Panther and G. Radden, "Introduction," in *Metonymy in Language and Thought*, ed. K.-U. Panther and G. Radden, Human Cognitive Processing 4 (Amsterdam: J. Benjamins, 1999), 9. Indeed, as G. Radden and Z. Kövecses point out, even the oversimplified "substitution" model of metonymy still involves a conceptual rather than a purely linguistic manipulation, so it is perhaps even more natural to shift to a cognitive-based view than it was in the case of metaphor ("Towards a Theory of Metonymy," in *Metonymy in Language and Thought*, ed. K.-U. Panther and G. Radden, Human Cognitive Processing 4 (Amsterdam: J. Benjamins, 1999), 17–59). R. Waltereit proposes various types of "experiential togetherness" (including part-whole, container-contents, and so on) that capture Dirven's whole range of types of syntagm and metonymy ("Grammatical Constraints on Metonymy: On the Role of the Direct Object," in *Metonymy in Language and Thought*, ed. K.-U. Panther and G. Radden, Human Cognitive Processing 4 (Amsterdam: J. Benjamins, 1999), 234.

[27] R. Dirven, "Metonymy and Metaphor: Different Mental Strategies of Conceptualisation," in *Metaphor and Metonymy in Comparison and Contrast*, ed. R. Dirven and R. Pörings, Cognitive Linguistics Research 20 (Berlin: de Gruyter, 2002), 92.

[28] *Ibid.*, 79–80, 83, 92. For catalogues of these "traditional" types of metonyms, see Z. Kövecses, *Metaphor: A Practical Introduction* (Oxford: Oxford University Press, 2002), 172–73; Haser, *Metaphor, Metonymy, and Experientialist Philosophy*, 17. For a more comprehensive index of metaphor and metonym structures, see K.-U. Panther and G. Radden, eds., *Metonymy in Language and Thought*, Human Cognitive Processing 4 (Amsterdam: J. Benjamins, 1999), 419–23. For comparable ancient typologies of metonyms or synecdoches, see e.g., Quintilian *IO* 8.6.19–28; *Rhetorica Anonyma*, Περὶ ποιητικῶν τρόπων 3.209.25–210.25, where twelve varieties are distinguished.

Both metaphors and metonyms move language from its basic or literal meaning to a figurative significance or a new shade of meaning through mechanisms that shift between conceptual domains and so open access into new semantic territory.[29] In the Lakoff-Johnson model, metaphor involves two domains, metonymy only one. A metonymic mapping takes place in a single conceptual domain, which is structured by an "idealized cognitive model" (ICM) such as "production" (where we might find the "author for work" syntagm) or "whole" (where we might find "part for whole," and "whole for part").[30] In this model, metonymy relies on the conceptual closeness of elements in the domain to account for how they can be substituted for one another.[31] Dirven, however, offers a modified and ultimately more satisfying picture of how domains function in metaphor and metonymy. He distinguishes between the functions of metonymy and metaphor in terms of contiguous and non-contiguous domains: in metonymy two related domains are interpreted as a single domain matrix, whereas in metaphor the source domain is erased in the course of the mapping.

This distinction does not in any way restrict metonyms to non-figurative shifts of meaning: as Dirven argues, "the distinction between non-figurative and figurative meaning cuts right across" the differences between the domain shifts metaphors and metonyms effect.[32] That is, metaphor and metonymy exist on a continuum bounded on one side by the non-figurative meaning of the "linear" metonym, and on the other by the complexly figurative domain-collapse of an elaborate metaphor.[33] Along that continuum are many degrees and types of figurativity, and these will be very useful in providing a road-map for Plotinus's complex interweaving of the literal and the figurative. Barbanti, for example, remarks on the “metonymic chain” of contiguities that structure Plotinus’s complex metaphors of “light.”[34]

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[29] For the definition of a domain in terms of a "concept profile," see W. Croft, "The Role of Domains in the Interpretation of Metaphors and Metonymies," in *Metaphor and Metonymy in Comparison and Contrast*, ed. R. Dirven and R. Pörings, Cognitive Linguistics Research 20 (Berlin: de Gruyter, 2002), 165–66. Croft notes that, when Lakoff and Turner turn to discuss metonymy, they pivot to identifying it as a mapping within a schema (*ibid.*, 177).

[30] On ICMs see Lakoff, *Women, Fire, and Dangerous Things*, 68–90; Croft, "The Role of Domains in the Interpretation of Metaphors and Metonymies," 177; Kövecses, *Metaphor*, 173; Dirven, "Metonymy and Metaphor," 87.

[31] Kövecses, *Metaphor*, 175.

[32] Dirven, "Metonymy and Metaphor," 92.

[33] Hence the tongue-twisting overlap category of "metaphtonymies"; see e.g., G. Steen, "Metonymy Goes Cognitive-Linguistic," *Style* 39/1 (2005): 5.

For Plotinus, metaphorical transfer appears to grant access to the domain of intelligibles to a properly-disposed contemplative observer. So, for example, beauty in the intelligible realm may finally be grasped by one who is “altogether, we may say, drunk and filled with the nectar,” who has become so suffused with that beauty that he becomes identical with it: “one must transport (*metapherein*) what one sees into oneself, and look at it as one and look at it as oneself” (V.8.10.39–40).[35] That is, the metaphorical transfer elides the distinction between the two domains, just as in Dirven’s model. Plotinus often recurs to the figure “drunk on nectar,” an allusion to Plato’s *Symposium*. It is again explicitly connected to metaphor when Plotinus characterizes the assertion that intellect can be mixed with pleasure as an excursion into figurative language that philosophers resort to when a literal description is simply unavailable. This, says Plotinus,

> is what the other words which we are fond of do metaphorically, like ‘drunk with the nectar’ and ‘to feast and entertainment,’ and what the poets say, ‘the father smiled,’ and thousands and thousands of others.
>
> VI.7.30.25–29

He does not indict the use of metaphorical language here; indeed, his own “thousands and thousands of others” is itself one of the metaphors canonized in Aristotle’s list.[36]

Much more important for Plotinus than its use as figurative language, however, is metaphor’s capacity to effect conceptual transfers between ontological domains, as we saw with the elision of the distinction between the self and the objects of contemplation from the intelligible domain. Even where this contemplative domain-collapse is not at issue, Plotinus credits metaphorical transfer as granting the ability to apply concepts from the sensible realm to the relatively inaccessible intelligible realm. For example, when considering whether the soul has matter and form, Plotinus makes a comparison to the shaping of bronze by a sculptor, analogizing one facet of intellect to the shape of the bronze, another to the sculptor. Conceptual access to the challenging nuances of intellect's formative work is thus granted for anyone "transferring (*metapherōn*)" knowledge, acquired in the sensible domain, about how the sculptor forms a substance that itself has a form to "the whole universe" and to Intellect (V.9.3). As the analogy here between sculptor and substrate and intellect suggests, Plotinus uses conceptual operations other than metaphor to define relationships between objects in both the sensible and the intelligible worlds; drawing on Plato, Plotinus labels these operations "similitudes (*eikones*), "exemplars (*paradeigmata*)," or "analogies (*analogiai*)."[37]

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[34] M. Di Pasquale Barbanti, *La Metafora in Plotino*, Testi E Studi Di Storia Antica (Catania: Bonanno, 1981), 31.

[35] All translations of Plotinus are taken from Armstrong’s extraordinarily lucid Loeb translation.

[36] For extended discussions of Plotinus’s most frequently-used metaphors, see Ferwerda, *La Signification des Images et des Métaphores dans la Pensée de Plotin*; Di Pasquale Barbanti, *La Metafora in Plotino*.

Plotinus also makes extensive use of the domain-spanning contiguity relationships metonymy and synecdoche encompass. For example, he repeatedly refers to the relationship between a circle and its radii to explain how multiplicity and contiguity can be compatible; the radii may appear to be many, but in fact they are all united by their single center and make up the single surface of the circle.[38] As we shall see, the connections Plotinus will establish between the parts of the body, between the bodily and psychic domains, and between the domain of the individual and that of the All, intersect provocatively with the understanding of metonymy as a system of inter-domain semiotic transfer that maintains the identity of both original domains.

3 Plotinus on Body and Soul

What holds us together as unified individual organisms on a bodily level (as opposed to the level of soul, a problem with its own vast associated discourse)? Body and soul are so intricately intertwined in Plotinus that we must first look through the lens of the soul-body complex before we can scrutinize the body itself. To discuss Plotinus's views on the relationship between body and soul is a nontrivial task; Porphyry reports that his attempt to elicit an answer to a question on these matters trapped him in a three-day disquisition.[39]

Emilsson argues that Plotinus distinguishes a special kind of unity that pertains to living things, as "in the case of organisms we have a different part-whole relationship: an account of a part must make reference to other parts and to the whole."[40] Souls are entireties, and not subject to partition in the way that magnitudes are (IV.3.2). Nor are they subject to partition in the sense that the soul in someone's little finger can be said to be a distinct part of the soul as a whole (IV.3.3). The complex negotiations Plotinus sets up between parts and wholes can be clarified by regarding them as an array of metonymic relationships strung throughout a structured domain matrix. He argues that the soul, in the domain in which it extends to bodies, pervades the body without being spatially delimited by it, and can maintain its unity even if it is spatially disrupted:

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[37] Ferwerda, *La Signification des Images et des Métaphores dans la Pensée de Plotin*, 6. See also Di Pasquale Barbanti, *La Metafora in Plotino*, 71–74.

[38] VI.5.5; see also I.7.1, V.1.11, VI.9.8.

[39] Porph. *Plot.* 13.11–18; S. R. L. Clark, "Plotinus: Body and Soul," in *The Cambridge Companion to Plotinus*, ed. L. P. Gerson (Cambridge: Cambridge University Press, 1996), 275.

> it is certainly not torn away from itself when it is in the finger as in the foot. So it is also in the All, to whatever it reaches; it is in one part of a plant and also in another, even if it is cut off; so that it is in the original plant and the part cut off from it: for the body of the all is one, and soul is everywhere in it as in one thing.
>
> IV.3.8.42–47

Plotinus effectively proposes three domains here: the bodily, the psychic, and that of the All; the first two are contiguous and metonymically connected, while the third is linked to the others by a metaphorical structure we will explore shortly. Within the bodily domain, the soul's contiguity may be disrupted, but it retains its essential unity because it is not severed in the psychic domain, which is contiguous (but not identical) with the domain of the ensouled body. The soul is not delimited spatially in the domain of the body; its unified identity is preserved in the psychic domain. The "part/whole" structures of these domains simply play by different rules: in the bodily domain, parts must retain their material contiguity in order to be considered a part of a whole; in the psychic domain this restriction does not apply (or even make sense).

In what domain(s) are body and soul contiguous? Plotinus stipulates that the soul is not within the body in the sense of a place (ὡς ἐν τόπῳ) or receptacle (ὡς ἐν ἀγγείῳ); nor is it in body in the sense of a substrate (ὡς ἐν ὑποκειμένῳ). Likewise, the soul is not in the body as a part in a whole, nor as form is in matter. Some have suggested, he says, that the soul is in the body as a steersman is in a ship (IV.3.21). He finds this metaphor successful at explaining the ssoul's separation from body, but unsuccessful at explaining its ubiquity; after all, the steersman can scarcely be said to be a guiding presence throughout the ship.

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[40] E. K. Emilsson, *Plotinus on Sense-Perception: A Philosophical Study* (Cambridge: Cambridge University Press, 1988), 13.

On the other hand, his skill and control might be said to be present in tools like the rudder: we hypothesize a kind of distributed cognitive system "as if the rudder were ensouled ([οἷον] εἰ ἔμψυχος ὁ οἴαξ ἦν)" (IV.3.21.12–13), and suppose that the soul is likewise in the body "as in a natural tool (ὡς ἐν ὀργάνῳ φυσικῷ)" (IV.3.21.16). Still this is not quite right, because the skill still comes from outside. Yet Plotinus acknowledges that at least this gets us closer.

He then selects the most salient attribute of the previous metaphor, that is the fluid co-presence of one thing with another, pushing it forward into new, more vividly familiar metaphorical territory, and indeed in two variations: the way fire is present to air, and the way air is illuminated by light. In the first case, fire is present to a roomful of air; the air can flow around and through it, but the fire is not mixed with the air. As for its light, when the air is in the lighted area "one can rightly say here too that the air is in the light rather than the light in the air," (IV.3.22.6–7), just as the body might best be considered to be in the soul rather than the soul in the body.[41] As there is a domain of the soul in which the body does not overlap it, it must not be said to be present in the body, though it is correct to speak of certain faculties of the soul as present in the body.

Let us return to the metaphorical link to the domain of the All, which Plotinus exploits in the passage on how the soul is delimited (IV.3.8). Plotinus has previously distinguished between the soul belonging to the All and our souls, which come down into the "Here" (ἐν τῷδε). Our souls have a higher and a lower part, a part that descends and a part that does not, and the relationship between these parts determines our degree of goodness.[42] Plotinus hypothesizes a comparison likening the lower part of the soul of the All to a plant that plays host to harmful insects:

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[41] Plotinus later adds that the human body in particular, as it is fully ensouled, might better still be thought of as air to which a fire has contributed (lasting) warmth rather than (transitory) illumination (IV.4.18). Animals and plants have a somewhat different arrangement, as Plotinus here asserts that their bodies have "a kind of shadow of soul" (IV.4.18), but even so they are enabled, as the human body is, to perceive pains and pleasures; so the comparison with the warmed air appears to be valid for them as well. On Plotinus's use of the metaphors of light and heat, see J. R. Mattingly, "Posidonius and the Light Metaphor in Plotinus," *Transactions of the American Philological Association* 63 (1932): xxxv–xxxvi; Ferwerda, *La Signification des Images et des Métaphores dans la Pensée de Plotin*, 49–55, 62–68; Di Pasquale Barbanti, *La Metafora in Plotino*, 151–60; K. Corrigan, "Light and Metaphor in Plotinus and St. Thomas Aquinas," *Thomist* 57/2 (1993): 187–99.

[42] Plotinus VI.7.5.23–25; Clark, "Plotinus: Body and Soul," 282–84. For a critical perspective on the terms "higher" and "lower," see D. J. O'Meara, "The Hierarchical Ordering of Reality in Plotinus," in *The Cambridge Companion to Plotinus*, ed. L. P. Gerson (Cambridge: Cambridge University Press, 1996), 66–81.

> Καὶ τὴν μὲν τοῦ παντὸς ἀεὶ ὑπερέχειν τῷ μηδὲ εἶναι αὐτῇ τὸ κατελθεῖν μηδὲ τῷ κάτω μηδὲ ἐπιστροφὴν τῶν τῇδε, τὰς δ᾽ ἡμετέρας τῷ τε εἶναι ἀφωρισμένον αὐταῖς τὸ μέρος ἐν τῷδε καὶ τῇ ἐπιστροφῇ τοῦ προσδεομένου φροντίσεως, τῆς μὲν οὖν ἐοικυίας τῇ ἐν φυτῷ μεγάλῳ ψυχῇ, ᾗ ἀπόνως τὸ φυτὸν καὶ ἀψόφως διοικεῖ, τοῦ κατωτάτω τῆς ψυχῆς τοῦ παντός, τοῦ δὲ ἡμῶν κάτω, οἷον εἰ εὐλαὶ ἐν σαπέντι μέρει τοῦ φυτοῦ γίγνοιντο· οὕτω γὰρ τὸ σῶμα τὸ ἔμψυχον ἐν τῷ παντί. Τῆς δὲ ἄλλης ψυχῆς τῆς ὁμοειδοῦς τῷ ἄνω τῆς ὅλης, οἷον εἴ τις γεωργὸς ἐν φροντίδι τῶν ἐν τῷ φυτῷ εὐλῶν γίνοιτο καὶ ταῖς μερίμναις πρὸς τῷ φυτῷ γίγνοιτο, ἢ εἴ τις ὑγιαίνοντα μὲν καὶ μετὰ τῶν ἄλλων τῶν ὑγιαινόντων ὄντα πρὸς ἐκείνοις εἶναι λέγοι, πρὸς οἷς ἐστιν ἢ πράττων ἢ θεωρίαις ἑαυτὸν παρέχων, νοσήσαντος δὲ καὶ πρὸς ταῖς τοῦ σώματος θεραπείαις ὄντος πρὸς τῷ σώματι εἶναι καὶ τοῦ σώματος γεγονέναι.
>
> And the Soul of the All would always remain transcendent because it would have nothing to do with coming down, even with its lower part, nor with a turning to the things here below, but our souls would come down, because they would have their part marked off for them in this sphere, and by the turning to them of that which needs their care. The Soul of the All (that is, its lowest part) would be like the soul in a great growing plant, which directs the plant without effort or noise; our lower part would be as if there were maggots in a rotten part of the plant—for that is what the ensouled body is like in the All. The rest of our soul, which is of the same nature as the higher parts of universal soul, would be like a gardener concerned about the maggots in the plant and anxiously caring for it. Or it is as one might speak of a healthy man living with other healthy men as being at the service of his neighbors either in his action or his contemplation; and of a sick man, concerned with the care of his body and belonging to it.
>
> IV.3.4.21–37

Let us unpack this complicated construction, with special attention to how Plotinus uses metaphor and metonymy to effect shifts between domains. The complex of the ensouled body is divided into two domains: our lower part, and the remaining part. The division is of course not simply spatial: the ensouled body is rather divided into two domains, metonymically contiguous with one another in certain ways, and metaphorically similar to certain other contiguity relationships.

In the first metaphorical comparison, the lower part of the ensouled body is said to be "like (οἷον)" the maggots in the body of a plant, whereas our remainder resembles a gardener who tries to care for the plant against the corrupting forces of the maggots. The presence of "οἷον" should not force a pedantic disqualification of this passage as metaphorical. This simile can better be seen as an implicit statement of class inclusion, whose degree of metaphoricity may be reduced by the "hedging" effect of "οἷον," but not reduced to zero. The infested garden is the prototype: this domain includes things that are alive, ensouled and embodied, whose soul quietly guides their growth under normal circumstances; they admit of healthier and sicker states, and they cannot remedy themselves, but are rather the charge of an external entity that can attempt to heal them. It also includes corrupting entities and the healing entity itself.

Plotinus invites the reader to consider the degree to which our ensouled body can fit into this domain. The match is a strong one overall, though it requires some shifting of attributes: the soul that normally maintains the health of the ensouled body is the part of the Soul of the All we have access to (which is to say, its own lower part); unlike the plant our body is not attacked from outside by maggots, but one part of the ensouled body attacks another; the remedy too comes not from a separate entity, but from another part of ourselves. These differences owe largely to the distinctions between the things that plant souls do and those that animal and human ones do, an issue to which we will return.

Plotinus then shifts his gaze to another domain, as the lower part and remaining part are here compared to two elements of an imagined community: a sick man and a healthy man. The connective relationship between the "ensouled body" and "community" domains is "as if one might speak of (ἢ εἴ τις … λέγοι)" it: Plotinus puts this metaphor at arm's length, leaving it *in potentia.* However, we can with Glucksberg and Keysar acknowledge the possibility of *degrees* of metaphoricity; the "arm's length" positioning here is a kind of hedge that may reduce the degree of metaphoricity, but the transfer occurs nonetheless. The transfer invites the reader to consider another set of attributes belonging to the two facets of our soul. The healthy man aims at the health of the community beyond himself, serving it through action and contemplation; the sick man, by contrast, is so bound up in the travails of his own body that he is turned completely inward.

This whole complex of domains is set in relation to yet another domain: the bifurcated Soul of the All.[43] Plotinus makes two different kinds of comparison from this entity: its lower part is “like (ἐοικυίας)” the soul of the metaphorical plant, while its higher parts are “of the same nature (ὁμοειδοῦς)” as the remaining part of our soul. The dual modes of comparison reflect Dirven’s nuanced spectrum of degrees of figurativity. The relationship between the All-soul’s higher part and that of our own is stipulated as an actual likeness of *eidos*; the two maintain their individual identities, but join one another in a contiguity that closely resembles Dirven’s “conjunctive syntagm.” By contrast, the lower part of the soul of the All bears a more figurative resemblance to the plant’s soul; the two are connected by a metaphorical transfer in which the “source domain” of the ensouled All collapses into the “target domain” of the plant.

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[43] On the contiguity between the vegetal soul and the intelligible domain, see Collette-Dučić, *Plotin et l'ordonnancement de l'être*, 96.

4 Bodily Organs in Plotinus and Galen

To elucidate the structural and functional connections between body and soul, Plotinus uses a well-known construct: the Platonic tripartite soul (consisting of rational, spirited, and appetitive “parts” or “forms”), and its relationship to the organs of the body (brain, heart, and liver or belly). This complex is perhaps most familiar in a medical context from Galen, who discusses it at considerable length, most of all in his *De placitis Hippocratis et Platonis* (*PHP*), where he adjusts the Platonic doctrine to conform to state-of-the art anatomical and physiological knowledge.[44] While most of Galen’s analysis is focused on the “faculties” of the three parts of the soul, whose sources are respectively the brain, heart, and liver, he clarifies that in fact “it would be better to speak of a substance of the soul, rather than a power, enclosed” in each of these organs (6.3.7). He does not often speak of this “substance (*ousia*),” but it is introduced where it serves the important function of explaining how the liver can be the source of diverse powers including both nutrition and desire.

It seems very likely that Plotinus was himself familiar with the model of the soul and its relationship with the body that Galen discusses in the *PHP*. Tieleman observes, for example, that both authors speak in terms of one entity (the soul, in Plotinus’s case; the central organ of each psychic subsystem, in Galen’s) “using” peripheral parts like the nerves.[45] Tieleman concludes that because Plotinus so closely echoes Galen’s comparatively recent portrait of the anatomy of the nerves and their support of psychic functions, as well as his emphasis on "appropriateness," with similarity down to the level of vocabulary, that his work is "sufficiently close to warrant the assumption of direct dependence" on Galen's.[46]

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[44] For Galen’s treatment of the tripartite soul, see M. Schiefsky, “Galen and the Tripartite Soul,” in *Plato and the Divided Self*, ed. R. Barney, T. Brennan, and C. Brittain (Cambridge: Cambridge University Press, 2012), 331–49.

[45] Galen *PHP* 2.3.6, Plotinus IV.3.22.9–11; T. Tieleman, “Plotinus on the Seat of the Soul: Reverberations of Galen and Alexander in Enn. IV, 3, [27], 23,” *Phronesis* 43 (1998): 312–13.

However, Plotinus makes his own transformations to Galen's adaptation of Plato's tripartite soul. Plotinus is committed to a doctrine of an incorporeal, indivisible soul, which makes Galen's emphasis on its components' separation and distribution throughout the body problematic.[47] Plotinus claims rather that the brain, heart, and liver each serve as the *archē* of a faculty of the soul in the sense that the different *operations* of the soul take place there.[48] This suggests something important for the body's unity: when Plotinus appears to refer to the brain as the "principle of … the whole animal," he is not referring to a soul, or even something like a *hēgemonikon*, that is itself hosted entirely in the brain. Tieleman argues that at most this reference serves as a defense of "Plotinus' belief that the soul's unity resides in reason," but then goes on to assert that Plotinus means that reason, as the principle of the soul, is the "principle of the whole living being."[49] If we are not to oversimplify Plotinus's model of the soul's relationship with the body as a whole, the notional connection between brain and principle must be broken here.

Galen observes that while the brain's status as the source of motion and sensation can be visibly demonstrated by putting pressure on the ventricles, and the heart's as the source of pulsation can similarly be demonstrated by ligating veins, the liver does not create any such opportunities for visible demonstration. The liver does not create any "obvious motion," but is in fact the source of a faculty that also exists in plants (6.3.4–10). Consequently, Galen argues, the liver can be best understood by studying plants:

> For the investigation of this matter it is best to examine first the generation and government of plants; for it is reasonable to expect that since the power we are investigating is the only (power) they have, they will provide clearer indications of the part that is its source. (6.3.10)

Galen proposes a functional analogy between the faculties associated with the liver (desiderative (ἐπιθυμητική), vegetative (φυτική), and reproductive

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[46] *Ibid.*, 313.

[47] *Ibid.*, 314–15; Collette-Dučić, *Plotin et l'ordonnancement de l'être*, 119–20.

[48] Tieleman, "Plotinus on the Seat of the Soul," 315; R. T. Wallis, *Neo-Platonism* (New York: Scribner's, 1972), 76ff.

[49] Tieleman, "Plotinus on the Seat of the Soul," 314.

(γεννητική)) and the limited faculty possessed by plants, suggesting that the plant's (relatively) visible activities will provide a window onto the invisible actions of the liver. Galen's analogical investigation relies on a metaphor that collapses the liver's domain into the plant's; the processes are taken to be so structurally and functionally similar between the two domains that this metaphor lies relatively low on Dirven's scale of figurativity.

What do we find when we investigate plants' patterns of growth? Their seeds require moisture to propagate; when a seed absorbs moisture it turns it into air, which then allows the seed to break open its husk and send forth shoots. One of these shoots travels downward, the other upward, a fact which will turn out to be crucial for the structural analogy with the liver's infixion in the animal body:

> And these (shoots) are observed to make a continuous growth and to move at all times in the direction in which they originally set out. And as time passes, if the seed is the seed of some large tree, the shoot that goes into the air becomes its trunk, and the shoot that goes downward into the earth becomes a root; and each splits into many forks, if it was the seed of a many-forked tree.… It seems to form the whole upper part, which is the actual tree, for its own sake and for the fruit, the lower part for the provision of nutriment. (6.3.12–15)

First Galen analogizes the tree's roots to the mouth of an animal: the "many little mouths" of the tree's root system draw in nourishment from the ground. Then he instructs his reader to "transfer (μετένεγκε)"[50] the mechanism of nutrient uptake to the *inside* of an animal:

> First consider the largest artery, which grows out from the heart like a tree-trunk and splits in two, its lesser part rising to the head, its greater part extended down the spine. Next, observe all its offshoots reaching out to every part of the body … (6.3.16)

The initial analogy between the animal's mouth and the plant's root-terminals is functional: the two are alike, because they bring in natural nutriment to the organism. However, when the transfer to animals is made in full, the justification is based on a structural, rather than functional, analogy, and initially Galen remarks on the heart rather than the liver. The aorta structurally resembles the trunk of a tree that matures from the plant's initial shoots: it is a central extended element, reaching both up and down, structurally suited for branching off into ever smaller offshoots that ramify widely. Galen continues to elaborate the structural analogy rather than the functional one as he proceeds to compare arteries and nerves, arguing that larger branches are everywhere the source of smaller ones.

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[50] μετένεγκε is Müller's addition.

When he returns to the liver (6.3.39), it is to repeat the structural analogy with the tree for the case of the liver, which like the seed sends one primary vein upward, one downward to the stomach. Galen later comes back to the liver to discuss a different question: its suitability as the *archē* of the *epithumetikon* component of the soul (6.5.21–34). It is here that the "single substance, many faculties" formulation proposed in 6.3.7 pays off, allowing Galen to integrate Plato's desiderative faculty with Aristotle's multifarious complex of vegetative, nutritive, and reproductive faculties, and to announce the liver as their common source.[51] However, as Tieleman observes, Galen never explains the reasons for his assertions that the liver does indeed fulfill this function.[52] Why, indeed, should digestion and desire be connected? Schiefsky observes that Galen engages a passage from Plato's *Timaeus* on plants' sensory capacities to explain the connection: plants have only the limited *aisthēsis* to sense what is proper and what is foreign to them, and to attract only the former to nourish themselves.[53] Certainly the link is clear in the domain of plants, but the circuit that would establish the same explanatory link in the animal domain does not seem to close completely.

Plotinus makes the connection between the two domains more explicit: "for that which generates and nourishes and produces growth must necessarily also have a desire for generation, nourishment and growth" (IV.3.23.40–42). Crucially, the continuity of nutrition and desire is structurally and functionally linked to the continuity of the organism as a whole. Nutriment is in the veins; the veins and blood both emerge from the liver; the liver processes the blood which pervades the body; this pervasive blood is the means by which the vegetal principle (present in every living thing) maintains the organism; and the liver is where the faculty of this principle is located (IV.3.23.37–40). The part of the soul "which we have in common with plants, which is responsible for growth and nutrition, is not absent from any part of the body" (IV.3.23.35–37).

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[51] "κατὰ δὲ τὸ ἧπαρ ἐπιθυμητικὴν [ἢ φυτικὴν ἢ γεννητικήν·] ἢ ὡς οἱ περὶ τὸν Ἀριστοτέλην, θρεπτικὴν ἢ φυτικὴν ἢ γεννητικήν, ἀφ' ἑνὸς ἑκάστου τοὔνομα θέμενον, ἀπὸ μὲν τοῦ φύειν φυτικήν, ἀπὸ δὲ τοῦ τρέφειν θρεπτικήν, ἀπὸ δὲ τοῦ γεννᾶν γεννητικήν· ὁ Πλάτων δ' ἀπὸ τοῦ πλήθους τῶν ἐπιθυμιῶν ἐπιθυμητικήν," 6.3.7.

[52] *PHP* 6.8.57, 6.8.77; Tieleman, "Plotinus on the Seat of the Soul," 321–22.

[53] *Ti.* 77b; Schiefsky, "Galen and the Tripartite Soul," 343–44.

The body is permeated by this component of the soul, which in turn provides the mechanism for maintaining the body's identity as a single unified living organism.

Plotinus's innovation in thinking about the liver does not end with articulating a connection Galen left obscure, however. More dramatic is the change he effects in the balance of faculties connected to the liver and heart. When he moves to talk about the passionate faculty (IV.4.28), he begins by questioning what kind of thing it is and where its effects are produced in the body. He examines in particular detail whether its starting-point should be attributed to the body or some component of the body, for example, the heart in some particular condition (καρδίας οὕτως ἐχούσης), or bile in a non-corpse body (χολῆς οὐ νεκροῦ σώματος). Finally, he asks "whether, if it is something else which gives it, the passionate power is the trace of soul, or whether here the passionate spirit is this one particular thing, no longer derived from a power of growth or perception (εἰ, ἄλλου ὄντος τοῦ διδόντος, τὸ ἴχνος τὸ ψυχικόν, ἢ ἐνταῦθα ἕν τι τοῦτο ὁ θυμός, οὐκέτι παρὰ φυτικοῦ ἢ αἰσθητικοῦ)" (IV.4.28.8–10). The organism's life-state informs the physical substances and organs that comprise it, making them suitable foci for the soul's faculties, and perhaps for the "trace of soul." Hence bile is a fundamentally different thing in a dead body than a living one; its purely material substance may remain unchanged, but only in the living body is it part of the continuum of components that entangle body and soul.

Plotinus then gives a brief account of the role played by the body-pervading vegetal or growth faculty (which Plotinus calls τὸ φυτικὸν), by virtue of which the whole body is infused with the "trace of soul," and hence enabled to experience pain, pleasure, and desires of various kinds. The liver plays an important role here, serving in animals as the home base for the power of growth that produces desire:

> Let us grant, too, that the region around the liver is the origin of desire, because the power of growth is most active there which gives the trace of soul to the liver and to the body: it is there because its activity begins there.
>
> IV.4.28.15–18

The power of growth is linked unmistakably to the origin of desire, but that is not all it does: much more importantly, it gives the "trace of soul" to the liver, and hence to the body. In this model, the liver does not just work instrumentally to maintain life by serving as the origin site from which nutritive blood is infused into the body, as in Galen's model: it is the clearing-house through which the whole body is infused with soul. The "trace of soul" is itself conveyed to the living body through a kind of contiguity (τῇ οἷον γειτονείᾳ), and acts on the body like a heating or illumination process (VI.4.15; similarly, compare the "shadow" of soul at IV.4.18). Clark argues that this "trace of soul" is what "constitutes [the body] as a unit"; the unifying work of the vegetal soul, operating on bodily substances like blood and bile, clarifies the mechanism for how this "constitution" works at a bodily level.

The power of growth does not work alone; as it is naturally suited for unification, so it is naturally knitted together with the passionate faculty. Plotinus first asks what it is, what kind of soul, and whether it is what leaves a "trace" that spurs motion around the heart, "or whether here it is not a trace, but the passionate power of soul itself which causes anger" (IV.4.28.20–21). He lists the common causes of anger: we grow angry, he says, because of our own bodily sufferings, the sufferings of anyone with whom we feel a close connection, and upon witnessing or being subjected to improper behavior. The fact that these things anger us mean that perception and understanding are both involved in the process of becoming angry—we perceive improper behavior being perpetrated, we understand its impropriety and are so angered, and so forth.

Plotinus asserts that the two "traces" of soul are in fact consubstantial, as evidenced by the fact that those who are less desirous of bodily pleasures are likewise less inclined to anger. Neither part is prior or posterior to the other; instead, both should be taken as posterior, both derived from a common source, since "the division is one of impulses in so far as they are impulses, not of the substance from which they have come" (IV.4.28.69–70). Plotinus argues that substances are not themselves impulses, but supposes that they can attract the "activity (ἐνέργεια)" of an impulse and thus bring that activity to fruition (IV.4.28.70–72).

The Platonic and Galenic systems emphasize spatial separation and functional distinction. The rational, irascible, and desiring faculties are located in (or at any rate associated with) separate organs—hence Galen's insistent proofs about the separate systems of peripherals (nerves, arteries, and veins) extending from the organs (brain, heart, and liver) that are central to each faculty. They likewise carry out functions that are so distinct as to be frequently at war with one another, as when Plato describes the conflict Leontius experienced between his desire to look upon a pile of corpses and his anger at feeling such a desire.[54] Indeed, as Lorenz remarks, "Leontius is brought in to show that spirit is not, contrary to what Glaucon is initially inclined to think (439e1–4), an aspect of the appetitive part, but is a part of the soul distinct from appetite."[55]

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[54] *Republic* 439e6–440a3.

Plotinus acknowledges that this search for separation is natural and understandable—who, looking at the bodily effects of anger and considering its causes, would immediately think that the vegetal faculty was responsible? But he asks his reader to think about the physiology of anger, and particularly the involvement of both blood and bile. Hence, says Plotinus,

> when a propensity to anger follows bodily dispositions, and when those whose blood and bile are boiling are prompt to fly into a rage, and those who are said to be "without bile" and "chilly" are easy-going and slow to anger, and animals are angry because of their temperaments, but not because it appears to them that they have been ill-treated, one would be more inclined to attribute anger again to the more bodily part and to that which keeps the living organism together (πρὸς τὸ σωματικώτερον πάλιν αὖ καὶ πρὸς τὸ συνέχον τὴν τοῦ ζῴου σύστασιν).
>
> IV.4.28.28–35

From this perspective, it appears more likely that anger emerges from some component deeply connected to the body, and in particular *that which keeps the living organism together*. Is this part the heart or the liver, or perhaps a combination of the two? The answer becomes clearer in the next part of Plotinus's discussion.

Plotinus complexly interweaves different degrees of figurativity when he connects tendency to anger to bodily dispositions. First he asserts that one's tendency to get angry is literally dependent on bodily dispositions, themselves determined by the qualities associated with the humors. The seething of agitated blood and bile results in angry responses to provocation, so those who are slow to anger are *called* "without bile" (ἄχολοι) and "chilly" (κατεψυγμένοι). The first is a figurative stand-in for something like "without excess bile," while the second may be taken literally within the causal framework of humoral medicine.

Plotinus observes that variations in even a single person's humoral balance can affect one's tendency to anger; so, for example, when we are ill or hungry we are more liable to anger than when healthy or satiated. This affords yet more proof that anger has its origins in the "qualified body": when the body suffers, its blood or bile are put into motion. This motion in turn generates a perception, an image in the mind, which forges a connection between the soul and the bodily state, thus producing anger (iv.4.28.35–43). Sometimes anger is irrationally provoked, and the mental image recruits the reason to become angry; sometimes anger begins in the reason before ending up "in that which is naturally adapted to be angry (τὸ πεφυκὸς χολοῦσθαι)" (iv.4.28.49). Both cases require the involvement of the faculty or faculties that make the blood and bile seethe, since this motion produces the mental image in the first place.

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[55] H. Lorenz, "Plato on the Soul," in *The Oxford Handbook of Plato*, ed. G. Fine (Oxford: Oxford University Press, 2008), 260.

Next, Plotinus makes the surprising revelation that, in his model, both the rationally and irrationally provoked types of anger derive not from the spirited faculty, but from the vegetal faculty: "both of these derive from the power of growth and generation which constructs the body so as to be receptive of pleasures and pains, and it is this which makes the body bilious and bitter" (iv.4.28.49–52). This is a remarkable shift from the Platonic model, a powerful demonstration of Plotinus's willingness to overturn central elements of the schemes he works with when it is required. Still more remarkably, this passage clarifies that in the one that immediately precedes it, when Plotinus refers to attributing anger "to the more bodily part and to that which keeps the living organism together," he is indeed referring to the liver. So this passage reveals that the vegetal soul is the key to maintaining the organism's biological identity. Since its operation in animals is headquartered in the liver, the importance of this organ is radically increased compared to the Platonic and Galenic models. It is not the rational part of the soul, the special property of humans, that unifies a living organism, so in Plotinus, biological identity is not (as indeed it should not be) a problem of special interest to human beings.

Even in organisms without a liver, the vegetal soul may still do the same work, which leaves us to ask what role desire might continue to play in the activities of such an organism. Tieleman observes that Aristotle separates the *phytikon, auxetikon*, and *threptikon* faculties from desire because plants have no sensation. Plato, on the other hand, seems to allow them "(a limited form of) sensation and desire."[56] Are plants subject to desire in Plotinus's model? At i.4.1 he denies them sensation and perception, and thus they do not seem to be subject to desire in the same way we are.[57]

Later (iv.4.22.1–5) he takes up the question again, now asking whether it might be proper to say that there is a common principle, which simply manifests differently in plants, humans, and the earth as a whole. If so, it might be that plants have a “kind of echo of soul,” and the thing that provides it would manifest in us as the faculty of desire, and in them as the faculty of growth. He presses further: might the earth’s soul be the source of the plant’s version of a soul? This depends on what kind of soul is present in the earth (whether it comes from the All or whether it has its own peculiar soul).[58] Ultimately he concludes that the earth must share in all the faculties of the soul in order to be able to transmit them to the beings that live on it (IV.4.26). Obviously the earth does not have a heart or a liver, but Plotinus argues that this is no reason we should think it does not possess the faculties associated with them in animals; just think, he says, of all the animals that lack ears and yet have the ability to sense sound. Likewise, he argues, trees do not get angry, even though they have the faculty of growth, just because they have no blood or bile (IV.4.28.58–63). If they did, but still did not have sense-perception, they would merely seethe with irritation; if on the other hand, they were also equipped with sense-perception, then they would be driven to defend themselves. Plotinus applies the principles of Hippocratic humoral medicine and of the Platonic tripartite soul over an exceptionally capacious range of questions that encompass not only the human body, but also bodies of all kinds of living things. In analyzing how these familiar anatomical, physiological, and psychological principles must work within some very different bodily landscapes, he in turn provides unique insight into the familiar human body.

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[56] Tieleman, "Plotinus on the Seat of the Soul," 319.

[57] However, he qualifies their lack of sensation by arguing that they do nevertheless have a share of *eudaimonia*, since the goodness of a natural state must pre-exist an organism's awareness of that goodness (i.4.2).

5 Conclusion

Plotinus metonymically situates the ensouled human body within a much larger context of bodies and souls associated with individuals (plants, animals, even the world itself) and that of the All. The vegetal soul is entrusted with keeping the individual together; likewise, as it is the closest part of the intelligible domain to us, it serves as a nexus between the sensible and intelligible domains. The faculty of growth, particularly with the additional capacities it acquires in organisms equipped with a liver, is the keystone of this unified multiplicity.

Plotinus’s metonymic body connects the psychic and bodily domains, and those of the individual and the All, through a complex chain of contiguities.

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[58] Plotinus’s description of the sensible world as a living being is most obviously derived from the *Timaeus*, but on the Stoic coloring of his portrait of the world see Emilsson, *Plotinus on Sense-Perception*, 13.

Throughout the *Enneads* he articulates the metonymic ramification that preserves contiguity throughout a multiplicity of domains:

> For the gathering together of all things into one is the principle, in which all are together and all make a whole. And individual things proceed from this principle while it remains within; they come from it as from a single root which remains static in itself, but they flower out into a divided multiplicity …
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> III.3.7.8–13

The metaphor of the rooted yet ramifying plant here clarifies a metonymic relationship where individual domains proliferate from the connected core domain, and both are ultimately preserved. This "divided multiplicity" with a "single root" reflects the manifold contiguities upon which metonymy may draw. He says later that the soul

> is like a long life stretched out at length; each part is different from that which comes next in order, but the whole is continuous with itself, but with one part differentiated from another, and the earlier does not perish in the later. What, then, about the soul that comes to exist in plants? Does it generate anything? Yes, that in which it is.
>
> V.2.2.26–30

Another way of thinking about contiguity: persistent individualized components that comprise an integrated whole. The whole can only be described in terms of either spatial or temporal extension, though neither one should be identified as actually being the domain in which the soul is actually contiguously extended.

At the same time, metaphor fuels the conceptual transition from the sensible to the intelligible, a leap between domains, which is crucial to Plotinus's whole intellectual project. Superimposing diverse domains and experimentally collapsing them together allows the reader to consider both the overlaps and the mismatches between them, and so to emerge with a fuller understanding of both. In his persistent comparisons between divergent types of bodies and souls, particularly those of humans and plants, Plotinus provokes us to reflect on the attributes we share with all other types of living individuals, even as he delineates those that are peculiar to rational creatures.

The "prototyping" approach to metaphor, in particular the ad-hoc (rather than experientialist) view of prototype determination, clarifies how he structures these conceptual manipulations. Where he intends the reader to focus on the psychology and physiology of metabolic life, a plant is an apt prototype; when the focus is on rational, active self-care, a human or group of humans is more appropriate. The flexibility of the ad-hoc prototyping approach allows Plotinus to return repeatedly to a core group of metaphors (the light, the sphere, the tree, and so forth), each time from a different angle with a different emphasis. Plotinus's metaphors of the body shock and surprise at least as often as they confirm our pre-existing conceptual models; this is key to his therapeutic project. Metaphor, along with metonymy, allows Plotinus to gradually build up a rich and provocative portrait of how man's body and soul are structured within a complexly interconnected universe with a life of its own.

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